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PHASE II SITE INVESTIGATION REPORT

SILVERIZING SERVICES SITE

MOORESTOWN, NEW JERSEY

Prepared By:

McLaren/Hart Environmental Engineering Corporation
8500 Brooktree Road, Suite 300
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MAY 1, 1995



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PHASE II SITE INVESTIGATION REPORT

**PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY**

Prepared for:

**PPG Industries, Inc.
Pittsburgh, Pennsylvania**

Prepared by:

**McLaren/Hart Environmental Engineering Corporation
8500 Brooktree Road, Suite 300
Wexford, PA. 15090**

MAY 1, 1995

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ENVIRONMENTAL ENGINEERING CORPORATION

April 28, 1995

John Osolin
Emergency Remedial Response Division
U.S. Environmental Protection Agency Region II
26 Federal Plaza 747
New York, New York 10278

**SUBJECT: PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY**

Dear Mr. Osolin:

On behalf of PPG Industries, Inc., McLaren/Hart Environmental Engineering Corporation (McLaren/Hart) is pleased to present to the U.S. Environmental Protection Agency (U.S. EPA) Region III the Phase II Site Investigation Report for the Pulverizing Services Site in Moorestown, New Jersey. At your request, eleven (11) copies of the report have been forwarded for your review. In addition to these 11 copies, three copies of the Phase II Investigation Report have been sent to Camp Dresser and McKee Federal Programs Division (CDM).

If you have any questions please feel free to call Tom Ebbert from PPG Industries, Inc. at (412) 492-5478 or myself at (412) 934-3744.

Sincerely,

McLAREN/HART



Greg Peterson, C.I.H.
Project Coordinator

GRP:leb

Attachments

cc: Mr. Thomas Ebbert - PPG Industries, Inc.
Mr. Neale J. Misquitta - Key Environmental, Inc.
Mr. Jacob A. Bourdeau - McLaren/Hart
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LIST OF ABBREVIATIONS

AOC	Administrative Order on Consent
ASTM	American Society for Testing and Materials
bgs	Below ground surface
BTU/lb	British thermal unit/pound
CDM	Camp Dresser & McKee, Federal Programs Division
CFR	Code of Federal Regulations
CLP	Contract Laboratory Program
cm/sec	Centimeters per second
COC	Chain of Custody
COE	Corps of Engineers
COI	Constituents of interest
Cr (VI)	Hexavalent chromium
CT&E	Commercial Testing and Engineering Company
DDD	Dichlorodiphenyldichloroethane
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DOT	Department of Transportation
DQO	Data Quality Objective
EDI	Environmental Drilling, Inc. (A division of CT&E)
EDS	Environmental Data Services, Inc.
ERT	Emergency Response Team
e.v.	Electron Volt
FEMA	Federal Emergency Management Agency
FFS	Focused Feasibility Study
ft	Foot
ft-bgs	Feet below ground surface
ft/ft	Foot per foot
ft-toc	Feet below top of casing
gal	Gallon
gpm	Gallons per minute
GPR	Ground Penetration Radar
HASP	Health and Safety Plan
HSA	Hollow stem augers
in	Inch
MCL	Maximum contaminant level
mg/Kg	Milligrams per kilogram
mg/L	Milligrams per liter
msl	Mean sea level
NCPA	NCP Analytical Instruments, Inc.
NGVD	National Geodetic Vertical Datum
NJDEP	New Jersey Department of Environmental Protection
NJDEPE	New Jersey Department of Environmental Protection and Energy

LIST OF ABBREVIATIONS (CONTINUED)

NJDOT	New Jersey Department of Transportation
NWI	National Wetlands Inventory
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
PAHs	Polynuclear aromatic hydrocarbons
PCBs	Poly-chlorinated biphenyls
PCNB	Pentachloronitrobenzene
PCR	Paul C. Rizzo Associates
PID	Photoionization Detector
ppb	Parts per billion
PPG	PPG Industries, Inc.
ppm	Parts per million
PRGs	Preliminary Remedial Goals
PSI	Pulverizing Services, Inc.
PSI	Professional Service Industries
psi	Pounds per square inch
PUF	Polyurethane Filter
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
RA	Risk Assessment
RBC	Risk-based concentration
SCS	Soil Conservation Service
Sch.	Schedule
SHPO	State Historic Preservation Officer
SIR	Site Investigation Report
SOPs	Standard Operating Procedures
SPT	Standard Penetration Test
ss	Stainless steel
SSLs	Soil Screening Levels
S.U.	Standard Unit
SVOCs	Semi-Volatile Organic Compounds
TAT	Technical Assistance Team
TCDD	Tetrachlorodibenzo-p-dioxin
TCL	Target Compound List
TOC	Top of Casing
TOC	Total Organic Carbon
TOX	Total Organic Halogen
TKN	Total Kjeldahl Nitrogen
TPH	Total Petroleum Hydrocarbons
TRPH	Total Recoverable Petroleum Hydrocarbon
TWC	Tap water concentrations
UCL	Upper confidence limit

LIST OF ABBREVIATIONS (CONTINUED)

USDA	U.S. Department of Agriculture
U.S. EPA	United States Environmental Protection Agency Region II
USGS	U.S. Geological Survey
USTs	Underground Storage Tanks
VCR	Video Cassette Recorder
VOCs	Volatile Organic Compounds
XRF	X-ray Fluorescence
yd ³	Cubic yard
μg/Kg	Micrograms per kilogram
μg/L	Micrograms per liter

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EXECUTIVE SUMMARY

A Phase II Site Investigation was performed at the Pulverizing Services Site in Moorestown, New Jersey by McLaren/Hart Environmental Engineering Corporation (McLaren/Hart). Work was performed in accordance with a U.S. Environmental Protection Agency (U.S. EPA) approved Work Plan dated August 1, 1994. Investigative activities were intended to complete the characterization at and around the site for the ultimate purpose of evaluating potential risks to human health and the environment and supporting the development of risk-based Preliminary Remedial Goals (PRGs) and a Focused Feasibility Study (FFS).

The Work Plan detailed the investigative activities to be performed at the site; these activities were intended to supplement and confirm the results of extensive historical investigative activities performed at or near the site since the late 1980's. Phase II Investigation activities specifically addressed on- and off-site surficial and subsurface soils, former disposal area soils, sediment quality, and groundwater quality conditions within the site boundary. Environmental characterization activities performed for the investigation included the following:

- Surface and subsurface soil (including off-site locations) screening using field screening methods for total chlorinated compounds and metals; the use of these field screening methods was confirmed *via* Contract Laboratory Program (CLP) analysis of select samples;
- Test pitting and soil sampling within a former disposal trench area;
- Drainage ditch and process area (including the Building 5 Trench and the Storm Sewer) sediment sampling;

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- Sampling of surface water within the site drainage ditches west of Area A and C and east of Area B;
- Installation of 21 shallow groundwater unit temporary piezometers across the site;
- Shallow groundwater unit potentiometric surface monitoring;
- Installation of four additional shallow groundwater unit monitoring wells;
- Decommissioning of temporary piezometers and the former plant production well;
- Performance of rising head slug tests in newly installed and existing monitoring wells; and,
- Collection of groundwater samples from monitoring wells and the former plant production well and subsequent analysis of these samples.

Following completion of data validation, the results of the various activities were reviewed and interpreted to form conclusions regarding environmental quality at the site and the fate and transport of chemicals. Primary conclusions formed as a result of these investigative activities include:

- The site physical geologic setting was found to be generally consistent with previous interpretations;
- Soil sampling and analysis indicate that site-related chemical constituents are present in site surficial soils and to a lesser extent, in subsurface soils;

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- Constituents of interest at the site were identified to be primarily metals and pesticide chemicals;
- Site-related chemical constituents were primarily identified within Area A;
- Chemical constituents were detected at off-site locations within 150 feet east of Area A and approximately 25 feet west of Area A;
- Surficial areas that were observed to be nonvegetated were identified to demonstrate the highest concentrations of site-related chemical constituents;
- Test pit activities identified the presence of approximately nine crushed metal drums within an area of a former subsurface geophysical anomaly;
- The former disposal trench area was observed to contain the highest concentrations of site-related waste materials; significant attenuation of the chemical constituents between the former disposal trenches and natural subsurface material was observed;
- Sediment sampling indicated that samples from trenches/storm sewers proximal to the former plant operations area contained the highest concentration of constituents. In addition, the drainage ditch sediment samples closest to the discharge outfall of surface runoff from the former plant operations area indicated the highest concentrations of constituents;
- Groundwater appeared to flow in a northwestern and southwestern flow direction;

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- Groundwater quality results indicate that site-related chemical constituents do not appear to migrate to Areas B and C;
- The only possible off site groundwater migration was identified within the shallow sand unit to the west of Area A;
- The occurrence and distribution of PCOIs in groundwater are similar to the distribution of total chlorinated compounds in soils in Areas A (Figure 12 through 15). With the local horizontal permeability, soil type (silt and clay content) and the low mobility of PCOIs, in conjunction with natural attenuation mechanisms (*i.e.*, dispersion adsorption and biological degradation), PCOIs are not expected to migrate to any significant extent in the shallow groundwater.
- Sample results from the former plant supply well indicate that this well does not contain target chemical constituents. This finding suggest that chemical constituents in the shallow groundwater unit have not migrated into the deeper bedrock unit.
- The delineation of the nature and extent of COI will support the progression of the risk-based Preliminary Remedial Goals and the Focused Feasibility Study.

McLaren/Hart has concluded that Phase II Site Investigation activities sufficiently characterized the site to provide the information necessary to proceed with the development of risk-based Preliminary Remedial Goals and the Focused Feasibility Study.

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1.0 INTRODUCTION

On behalf of PPG Industries Inc. (PPG), McLaren/Hart Environmental Engineering Corporation (McLaren/Hart) is pleased to present U.S. Environmental Protection Agency (U.S. EPA) Region II this Phase II Site Investigation Report for the Pulverizing Services Site located in Moorestown, New Jersey (Figure 1). Submittal of this report is in accordance with the Administrative Order on Consent (AOC) entered into by PPG and U.S. EPA on March 31, 1989 and the U.S. EPA-approved Work Plan (McLaren/Hart, August 1, 1994).

1.1 PURPOSE OF REPORT AND PROJECT OBJECTIVES

This Phase II Site Investigation was performed in accordance with a U.S. EPA-approved Work Plan (McLaren/Hart, August 1, 1994). In general, the investigative activities were intended to complete the characterization of environmental quality on and around the site with the goal of supporting the development of risk-based Preliminary Remedial Goals (PRGs) and a Focused Feasibility Study (FFS). Previous investigations, as summarized in Section 1.3 of this report have been performed to characterize the site. The Work Plan describing investigative activities for this Phase II Investigation was prepared using the results of previous investigations to focus the sampling activities. Site investigative activities were intended to achieve the following specific objectives:

- Characterization of the environmental setting of the site;
- Verification (and additional characterization) of the nature and extent of potential chemical constituents of concern;
- Spatial delineation of the source areas of the potential chemical constituents of concern; and,
- Identification of potential environmental receptors.

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The Work Plan detailed specific investigative activities to be performed at the site within specific areas of interest (stipulated in the AOC); these activities were intended to supplement and confirm the results of extensive investigative activities performed within the areas of interest at or near the site since the late 1980's. The overall focus of this Phase II Site Investigation was on-site and off-site soils in the vicinity of specific potential source areas, and a groundwater quality evaluation across the site.

1.2 SITE BACKGROUND AND HISTORY

The following sections describe site background conditions, including the regional setting, adjacent land use, previous site operations history, and a summary of previous soil/hydrogeologic investigations. Figure 2 presents a topographic plan of the Pulverizing Services Site, approximate locations of storm water sewers, key structural features (buildings, Underground Storage Tanks [USTs], *etc.*) utilities, and the approximate locations of the former disposal trenches.

1.2.1 Regional Setting and Adjacent Land Use

The Pulverizing Services Site is comprised of approximately 24 acres located in an industrial park at 331 New Albany Road in Moorestown, Burlington County, New Jersey. The site is located 3/4-mile due east of the North Branch Pennsauken River. An unnamed creek is located approximately 3/4-mile due east of the site. A drainage ditch flows from the former production area along the northwest portion of Area C, and discharges to an off site storm sewer. Land use immediately adjacent to the site is comprised of commercial, light industrial and residential areas as follows:

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- North - The northern boundary of the site is entirely bordered by Crider Avenue, across which is located a manufacturing facility;
- South - The southern boundary of the site is bordered by railroad tracks owned by BB&O, across which are located several residences;
- East - Active industrial facilities lie to the east of the site; and,
- West - Active industrial, commercial, and residential properties lie to the west of the site.

Figure 3 presents a drawing depicting the limits of the site and showing land use in the immediate vicinity of the site.

As presented in Figures 2 and 3, the entire site is further subdivided into three parcels. One major roadway, New Albany Road, separates Area B (southeast of New Albany Road) from Areas A and C (northwest of New Albany Road). Area B was the location of former plant administrative offices on a vacant field where production was not known to occur. Production area was located in Area A, and Area C primarily consists of a field northwest of the production area where no production or disposal activities are known to occurred.

1.2.2 Pulverizing Services Site Operating History

The property that is the subject of this investigation is an inactive pesticide formulating facility. A summary of the site ownership is based upon a review of available literature (Paul C. Rizzo Associates [PCR], April 1993) and is summarized as follows:

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- 1935 to 1946 - The plant was operated by the International Pulverizing Company;
- 1946 to 1948 - Micronizer Company, a subsidiary of Freeport Sulfur Company, owned and operated the plant;
- 1948 to 1963 - PPG Industries, Inc. owned and operated the plant; and,
- 1963 to 1979 - The plant was owned and operated by the Pulverizing Services, Inc. Operations reportedly ceased in 1979 due to labor problems.
- 1979 to 1995 - The facility has been inactive and unoccupied

During the operation of the plant, no active manufacturing occurred. The plant operations were primarily limited to the Area A. Operations began in 1935 and involved the grinding, micronizing, and blending of pesticides. Reportedly, operations initially solely involved inorganic pesticides such as lead arsenate, calcium arsenate, sulfur, and tetrasodiumpyrophosphate. These pesticides (specifically lead arsenate and sulfur-containing compounds) were developed prior to World War II for control of agricultural pests (U.S. EPA, November 1994).

In later years, synthetic organic pesticides such as dichlorodiphenyl trichloroethene (DDT), aldrin, malathion, dieldrin, lindane, rotenone, and n-methyl carbamate (Sevin or Carbaryl) were reportedly formulated. The active pesticide ingredients were not manufactured at the site. They were brought to the site, ground, blended, and packaged for distribution under various labels.

Site literature (Pulverizing Services, Inc.) indicated that since 1933, solely dry chemical processing was conducted at the site. The services provided included the grinding (using fluid

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energy [such as compressed air] milling to 1 to 15 micron size particles), densifying, packaging, warehousing, and distributing of products to support industries such as plastics, pharmaceuticals, and pesticides. Warehouse buildings (Buildings Number 29 and 6) constituted the largest structural areas.

A review of historical photographs shows that large sulfur piles were previously (prior to 1963 and 1970) located south of Buildings 5 and 6 (Figure 2). During the 1950's and early 1960's (U.S. EPA, February 1988), waste material was reportedly disposed of behind (north of) the main production buildings in several trenches. Historical project files reported a fire in 1964. The ash and debris from the fire was reportedly placed in a trench north of the main production buildings in Area A.

Commercial operations at the plant ceased in 1979. Former plant production facilities (within Areas A) were decommissioned by removing interior facilities and boarded shut in 1983 (McLaren/Hart, April 10, 1995) and are still standing. Areas B and C are unused and mostly well vegetated. In May 1988, security fencing was placed around Areas A and C. A removal of chemicals from within the site buildings was performed under the direction of USEPA in 1992. In spring 1993, security fencing was placed around Area B.

1.3 PREVIOUS INVESTIGATIVE ACTIVITIES

Since 1986, numerous environmental investigations have been conducted at the Pulverizing Services Site. These efforts have included soil, groundwater, sediment, surface water, and air evaluations. Detailed tabulated results and maps for these investigative activities are presented in the Phase I Site Investigation Report (Phase I SIR [PCR, April 1993]). The Phase I SIR presents a detailed description of current conditions at the site. Pertinent results of these site investigations are summarized in chronological order in the following paragraphs.

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NJDEPE Sampling - April 1986

In April 1986, the New Jersey Department of Environmental Protection and Energy (NJDEPE) contractors investigated Area A and sampled the following media of the site (NJDEPE, April 1986):

- Former Production Areas - floors and drains;
- Soils - five surface soil samples were obtained from several nonvegetated areas within Area A;
- Sediment - one sediment sample was obtained from the beginning of the drainage ditch located within Area A; and,
- Surface Water - one surface water sample was obtained proximal to the location of the sediment sample collected.

All sampling was conducted within Area A (former production area) and samples collected were analyzed by California Analytical Laboratories (California) for the following chemical constituents:

- Metals;
- Volatile Organic Compounds (VOCs);
- Semi-Volatile Organic Compounds (SVOCs);
- Dioxins; and,
- Pesticides, herbicides, and polychlorinated biphenyls (PCBs);

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The results of this sampling within Area A are as summarized following:

- Several metals were detected at concentrations above the method detection levels. These included arsenic, cadmium, chromium, lead, and zinc.
- VOCs were primarily undetected in soil/sediment/surface water samples. The only compounds detected in soils/sediment included low concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX). The surface water sample indicated 1,1-dichloroethane (5 micrograms per liter [$\mu\text{g/L}$]), tetrachloroethane (3J [quantified below the method detection level] $\mu\text{g/L}$) and 1,1,1-trichloroethane (79 $\mu\text{g/L}$).
- Similar to VOCs, SVOCs were primarily undetected within soil/sediment/surface water samples. SVOC reported detection limits were significantly elevated; the primary SVOCs detected in included hexachlorobenzene in one soil sample (240,000 micrograms per kilogram [$\mu\text{g/Kg}$]) and the sediment sample (4,900 $\mu\text{g/Kg}$). Phenol was also detected in the sediment sample (8,300 $\mu\text{g/Kg}$). Several polynuclear aromatic hydrocarbon (PAH) compounds were detected at low concentrations in sediments (pyrene, butylbenzylphthalate, and bis[2-ethylhexyl]phthalate) and the surface water sample (bis[2-ethylhexyl]phthalate).
- Dioxins were not detected at the site at detection level concentrations ranging from 2 $\mu\text{g/Kg}$ to 67 $\mu\text{g/Kg}$.
- Pesticides were also detected although analytical method detection levels were elevated. Soil samples indicated concentrations of dieldrin (2,000J to 9,100J micograms per kilogram [$\mu\text{g/Kg}$]), dichlorodiphenyltrichloroethane (DDT) (7,200

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to 2,300,000 $\mu\text{g/Kg}$), dichlorodiphenyldichloroethylene (DDE) (9,200J to 1,400,000 $\mu\text{g/Kg}$), and, dichlorodiphenyldichloroethane (DDD) (3,700J to 300,000J $\mu\text{g/Kg}$). Sediment and surface water contained Alpha-BHC (3,100J $\mu\text{g/Kg}$ and 3.2 $\mu\text{g/L}$, respectively), delta-BHC (2,600J $\mu\text{g/Kg}$ and 0.62 $\mu\text{g/L}$, respectively), gamma-BHC (5,500J $\mu\text{g/Kg}$ and 0.41J $\mu\text{g/L}$, respectively), aldrin (3,100J $\mu\text{g/Kg}$ and undetected at $< 0.5 \mu\text{g/L}$, respectively), dieldrin (8,800J $\mu\text{g/Kg}$ and 0.64 $\mu\text{g/L}$, respectively), DDE (9,200J $\mu\text{g/Kg}$ and $< 0.10 \mu\text{g/L}$, respectively), DDD (20,000 $\mu\text{g/Kg}$ and 1.4 $\mu\text{g/L}$, respectively), and DDT (200,000 $\mu\text{g/Kg}$ and 2 $\mu\text{g/L}$, respectively).

U.S. EPA Sampling - October 1987

In October 1987, the U.S. EPA Technical Assistance Team (TAT) conducted sampling at the Pulverizing Services Site. According to the sampling report, sampling was conducted within soil, sediment, surface water, former plant operations structures, including transformers and air media. These samples were analyzed solely for pesticides and herbicides. Detailed analytical result tables, including sample locations (from Areas A, B, and C) are presented in the Phase I SIR (PCR, April 1993). The results of this investigation are similar to those obtained by NJDEP in 1986. Results of this sampling are summarized as follows:

- Surface water samples indicated detectable concentrations of alpha-BHC, beta-BHC, delta-BHC, gamma-BHC, DDD, DDD, and DDT.
- Soil samples indicated varying concentrations of DDE, DDT, DDD, endosulfan sulfate, dieldrin, endrin ketone, methoxychlor, Malathion, alpha-BHC, beta-BHC, gamma-BHC, and heptachlor epoxide.

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- Transformer samples indicated the presences of varying concentrations of PCBs (less than 50 mg/Kg), namely Arochlor 1260.
- Air samples indicated detectable concentrations of alpha-BHC, DDT, botran, quintozone, and malathion.

U.S. EPA Sampling - December 1987

In December 1987, the U.S. EPA Emergency Response Team (ERT) conducted sampling at the Pulverizing Services site. According to the sampling report (U.S. EPA, 1987), surface and subsurface soil sampling was conducted within site Areas A, B, and C. The chemical compounds analyzed included only select metals (arsenic and lead), pesticides, herbicides, and PCBs. These results (figures and tables are presented in PCR, April 1993) are summarized as follows:

- Arsenic concentrations in surface soils varied from 800 $\mu\text{g/Kg}$ to 210,000 $\mu\text{g/Kg}$ and from 1,700 $\mu\text{g/Kg}$ to 130,000 $\mu\text{g/Kg}$ in subsurface soils. Lead concentrations in surface soils ranged from 8,700 $\mu\text{g/Kg}$ to 230,000 $\mu\text{g/Kg}$ and from 9,300 $\mu\text{g/Kg}$ to 120,000 $\mu\text{g/Kg}$;
- The following pesticide and herbicide concentrations were observed during this sampling event:
 - Alpha-BHC - <5 to 90,000 $\mu\text{g/kg}$;
 - Beta-BHC - <5 to 42,000 $\mu\text{g/Kg}$;
 - Delta-BHC - <5 to 17,000 $\mu\text{g/Kg}$
 - Gama-BHC - <5 to 11,000 $\mu\text{g/Kg}$;
 - DDE - <5 to 140, 000 $\mu\text{g/Kg}$;
 - DDD - <5 to 340,000 $\mu\text{g/Kg}$;

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- DDT - <5 to 3,800,000 $\mu\text{g/Kg}$;
- Carbaryl - <3,000 to 350,000 $\mu\text{g/Kg}$;
- Malathion - <2,000 to 530,000 $\mu\text{g/Kg}$;
- Botran - <5 to 630,000 $\mu\text{g/Kg}$; and,
- Diphenamid - <5 to 2,000 $\mu\text{g/kg}$.

A ground penetrating radar (GPR) survey conducted during this sampling event indicated several areas of subsurface anomalies in Area A. In addition, several areas of stressed vegetation were identified.

NJDOT Sampling - July 1991

In July 1991, the New Jersey Department of Transportation (NJDOT) sampled soil along New Albany Road as part of a storm water construction project. These data indicate (U.S. EPA, February 9, 1993) total pesticide concentrations ranging from 2 mg/Kg to 92.7 mg/Kg. This sampling also indicated the presence of petroleum odors in the area of the culvert discharge point to the ditch along the railroad tracks in Area B.

Phase I Site Investigation - April 1993

A Phase I Site Investigation was conducted at the Pulverizing Services Site from December 1989 to January 1990. A draft report was submitted to U.S. EPA on May 25, 1990. This report was later revised to include information collected and resubmitted (PCR, April 1993). As part of this investigation 20 soil borings were completed, and six monitoring wells were installed within Area A. Several soil samples (both surface and subsurface) were collected from each boring. Four surface soil samples were collected from the vicinity of the garage in Area B and one sediment sample was collected from the drainage ditch northwest of Area A. Samples were submitted for

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the analysis of VOCs, SVOCs, pesticides and herbicides. A magnetometer and electric conductivity survey was performed in Area C. The results of this investigation are detailed in the Phase I SIR (PCR, April 1993). Findings of the Phase I SIR are summarized as follows :

- Magnetometer and electrical conductivity surveys indicated the presence of three subsurface anomalies in Area C;
- Surface and subsurface soils were identified to contain DDD, DDE, DDT, aldrin, dieldrin, sevin, alpha-BHC, beta-BHC, and gamma-BHC;
- Sediment sample results indicate the presence of DDD and malathion. In addition, benzene, ethylbenzene, xylene, chlorobenzene, phenol, and tetrachloroethane were detected; and,
- During groundwater monitoring, DDT, sevin, BHC compounds, endrin ketone, dieldrin, naphthalene, nitrobenzene, and several PAH compounds were detected within several of the site monitoring wells.

Area B Drainage Ditch Sediment Sampling Report

In May 1993, PCR personnel collected sediment samples at seven locations within the drainage ditch east of Area B. Samples were field screened using a Dexsil Corporation (Dexsil) total chloride analyzer. Seven samples were submitted to Chester Laboratories (Chester) for the analysis of organo-chloride pesticides from the Target Compound List (TCL). Select metals (arsenic, beryllium, and lead) were also analyzed in addition to Total Petroleum Hydrocarbons (TPH), Total Organic Halogens (TOX), and Total Organic Carbon (TOC). The results of this sampling were as follows:

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- Dexsil field screening quantified total chlorinated compound concentrations between 6 mg/kg and 395 mg/kg;
- Chester laboratory analysis generally agreed with the Dexsil results within concentrations ranges from 0.2 mg/Kg to 12.7 mg/Kg of total organo-chloride pesticides;
- TOC concentrations ranged from 2,410 to 20,700 mg/Kg;
- TPH concentration ranged from 600 mg/Kg to 1700 mg/Kg;
- TOX concentration ranged from 39 to 479 mg/Kg; and,
- Arsenic, beryllium, and lead concentrations did not appear in elevated concentrations.

1.4 CURRENT USE

Currently, no operations are being conducted on site. Site Areas A, B and C are fenced to prevent trespass, Area A buildings are empty with respect to past process operations due to previous cleanup operations, and site investigation related drums are being stored in building 29. This document reports the current environmental conditions observed at the site.

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1.5 REPORT ORGANIZATION

The Phase II Site Investigation Report comprises the following five sections:

- Section 1 - Presents the project objectives, site background and operational history, and summarizes the results of the numerous previous investigations conducted at the site.
- Section 2 - Presents details on the specific field tasks completed and the general investigation methodologies followed during the execution of the Work Plan tasks.
- Section 3 - Presents the results of the investigative activities as a result of executing the Work Plan tasks.
- Section 4 - Presents a summary of the data evaluation process used to identify the media of interest and the potential constituents of interest (COI).
- Section 5 - Presents a summary of the Phase II Site Investigation and a conceptual site model. Recommendations are also listed in this section.

Supporting these five sections are 42 tables, 15 figures, and 9 appendices. Raw laboratory data were previously forwarded to U.S. EPA as a project Data Submittal (McLaren/Hart, March 27, 1995). Data Submittal II, comprising of nine soil borings, will be submitted to the EPA to compliment the March 27, Data Submittal.

2.0 FIELD AND GENERAL METHODOLOGIES

This section summarizes the methodologies followed for the execution of the Phase II Site Investigation at the former Pulverizing Services Site. The methodologies followed were generally consistent with those detailed in the Work Plan (McLaren/Hart, 1994). Section 2.1 presents a listing of the respective field mobilizations completed during execution of the Work Plan and a listing of the major subcontractors utilized to complete necessary field tasks. Section 2.1 also includes general methodologies used for respective Phase II investigative tasks and activities. General field procedures, methods, field equipment and sampling equipment decontamination procedures, and the shipping and handling protocol followed are summarized in Section 2.2. Several procedures were modified during the investigation based on field conditions or screening results. These modifications were described and approved through correspondence with U.S. EPA. Appendix H contains the appropriate documentation.

2.1 FIELD AND LABORATORY ACTIVITIES

Field work for the Phase II Site Investigation was spread over a five month period. This approach was used in order to complete a structured, technically efficient field program in a cost-effective manner. A brief summary and description of the periods of field activities follows:

- **October 27 to 28, 1994** - The primary objective was to evaluate the effectiveness of field screening methodologies using the Dexsil kit [total chloride concentrations] and the Millipore immunoassay methods for pesticides, and X-Ray Fluorescence [XRF] methods for metals (arsenic, cadmium, chromium, and lead). Surface soil sampling was conducted at twenty soil boring locations (SB-001 to SB-020). Fifteen soil samples were selected for analysis of pesticides and metals using Contract Laboratory Program (CLP) methods based on the field screening values.

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A statistical comparison of screening results to analytical results was performed. As a result of this evaluation, the Dexsil test kits were determined to be effective for analysis of total chloride concentrations, and were selected for further field screening to be completed during the remainder of the Phase II Site Investigation. Results of this evaluation are presented in detail in a summary report which was submitted to USEPA report (McLaren/Hart, November 29, 1994).

- **December 5 to 21, 1994** - Based on the results of the field screening evaluation, additional soil samples were collected from borings SB-021 through SB-083. In addition, test pits, composite samples, sediment and surface water samples were collected as required by the Work Plan. Samples were field screened using the Dexsil kits and XRF analysis. Select samples were submitted for CLP analysis. Twenty-one piezometers were installed to determine shallow groundwater potentiometric surface flow directions at the site. Groundwater elevations were measured in the piezometers.
- **January 6 to 10, 1995** - Groundwater elevations were measured in site piezometers and monitoring wells. Based on the shallow groundwater potentiometric surface flow direction, four additional monitoring wells were installed to supplement the existing six at the site. Well development was completed following installation of monitoring wells.
- **February 1 to 10, 1995** - Access to the former plant production well was prepared. Slug testing was completed within the ten site monitoring wells in accordance with procedures submitted to U.S. EPA (McLaren/Hart, February 2, 1995). Procedures for production well purging and sampling were performed and are documented in a letter to U.S. EPA (McLaren/Hart, January 13, 1995).

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Thereafter (February 9 and 10, 1995), groundwater samples were collected (following purging) from the site monitoring wells and production well. A down-hole camera survey was completed at the former production well in accordance with procedures submitted to U.S. EPA (McLaren/Hart, February 8, 1995).

- **March 2 to March 14, 1995** - Gravel was placed at the site to facilitate access. This was performed in accordance with procedures submitted to U.S. EPA (McLaren/Hart, March 8, 1995). Based on results of the December soil sampling, additional soil delineation was conducted from March 14 to 15, 1995 in accordance with procedures submitted to U.S. EPA (McLaren/Hart, March 6, 1995).

Field and mobile laboratory analytical services were primarily provided using McLaren/Hart personnel and equipment. Primary subcontractors used for support during the Phase II Site Investigation tasks included the following:

- Laboratory Analysis: CLP analysis of samples was performed by Quanterra Laboratories, Inc. (Quanterra), North Canton, Ohio;
- Geotechnical Laboratory: Soil sample geotechnical analysis was completed by Professional Service Industries, Inc. (PSI), Pittsburgh, Pennsylvania;
- Geoprobe: Soil sampling and piezometer installation was completed by NCP Analytical Instruments, Inc. (NCPA), Newark, Delaware;
- Drilling: Installation of the monitoring wells and the decommissioning of the former plant production well and piezometers was completed by Environmental

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Drilling, Inc. (EDI). EDI is a New Jersey registered drilling company located in West Creek, New Jersey. EDI also performed oversight of the piezometer installation;

- Survey: Site survey tasks were completed by Kelly Surveyors, a registered professional land surveyor located in Collingswood, New Jersey;
- Data Validation and Project Quality Assurance/Quality Control: Analytical data validation as well as Project Quality Assurance/Quality Control (QA/QC) were performed by Environmental Data Services (EDS), Allison Park, Pennsylvania; and,
- Downhole Video Logging: These services were performed in the former plant production well by Nittany Geosciences, Inc. (Nittany), State College, Pennsylvania.

Field activities were conducted in accordance with the U.S. EPA-approved site-specific Health and Safety Plan (HASP) and Addenda thereto, prepared for the Phase II Site Investigation. During the execution of a majority of the project field activities and tasks, U.S. EPA oversight contractors Camp Dresser & McKee Federal Programs Division (CDM) were present to observe and document the conformance of on-going activities to the Work Plan and to standard industry practice.

2.1.1 Soil Boring Program

Soil sampling was performed as a part of the Phase II Site Investigation to more accurately define the extent of potential site-related constituents determined during the Phase I Site Investigation

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and prior investigations (a summary of these previous site-related investigations is presented in Section 1.2.3). The Phase II soil sampling locations were chosen upon review of existing data with the objective of providing adequate aerial coverage. These locations were outlined in the Work Plan. Soil sampling was completed utilizing Geoprobe® and hand augering techniques at the 96 soil borings locations depicted on Figure 4. A total of 280 soil samples were collected from these locations. Each sample location was temporarily located and identified with a surveyor's stake prior to completion of the site survey. Several soil boring sample locations were changed in the field due to accessibility problems. Additional soil borings were added to the field program in order to conduct additional delineation.

Additional delineation involved soil borings from surrounding properties. Five soil borings were completed in the dense brush area on the industrial property west of Area B. Soil borings at this location are designated SB-091 to SB-095. Nine soil borings were completed on the industrial properties north of Area A and are designated by SB-011B, SB-031B, SB-033B, SB-042B, SB-084 to SB-087, and SB-096. Five soil borings were conducted in the residential Area West of Building #4 (SB-034B, SB-036B, SB-088, SB-089, and SB-090).

The Geoprobe® soil sampling program consisted of hydraulically pushing a 2-inch diameter MacroCore® to a depth of four feet below ground surface (ft-bgs). The MacroCore® was fitted with acetate liners prior to sample collection. Following each push, the soil sample 'core', which was segregated into 0 to 0.5 ft-bgs, 1 to 2 ft-bgs, and 3 to 4 ft-bgs depth intervals, was exposed by cutting open the acetate liner. The soil sample depth intervals were then described, measured, and composited (using the coning and quartering method) pursuant to Work Plan (1994) specifications by utilizing a stainless steel bowl and clean, decontaminated stainless steel trowels or spoons. The composited samples were then placed in laboratory-supplied glass jars for field screening as described in Section 2.1.2 and CLP analysis. Depending on site conditions encountered, soil samples were collected from intervals intermediate to those stipulated above

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or soil samples were not collected at deeper intervals. Subsurface soil samples at several locations were inaccessible to the Geoprobe® unit, and therefore, only surface soil samples were collected at these locations. At other inaccessible locations, hand augers were utilized to collect the necessary samples.

Soil samples were tracked *via* a unique sample numbering system and chain of custody (COC) procedures as described in Section 2.2 (including sample handling and shipping procedures). Any soil material not submitted for field screening and CLP analysis was replaced in the respective borings and firmly tamped down. Sampling and compositing equipment was decontaminated *via* the procedures described in Section 2.3.

Table 1 presents a summary of the respective analyses performed on the soil boring samples. In addition to field screening (*via* Dexsil and XRF methods for total chlorinated compounds and select metals [arsenic, cadmium, chromium, and lead], respectively) of soil samples, the following CLP analyses were performed during the initial surface sampling mobilization (October 27 - 28, 1994):

- TCL VOCs
- TCL SVOCs;
- TCL Pesticides;
- Sevin and Malathion;
- Select Metals (arsenic, cadmium, chromium, and lead); and,
- Select General Parameters (moisture, hexavalent chromium [Cr VI] and total organic halogen [TOX]).

Upon review of the October 27, 1994 results (*i.e.*, no detections or HNu® readings), it was determined that no additional surface soil samples would be submitted for VOCs analysis. This

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change in work scope was documented in a letter to U.S. EPA (McLaren/Hart, December 12, 1995). During the additional soil delineation activities (March 13 and 14, 1995), only TCL Pesticide, sevin, malathion, select metals, and Cr (VI) analysis were completed. This change in the work scope was documented in a communication to U.S. EPA (McLaren/Hart, March 6, 1995).

Based on the results of the Dexsil field screening (presented in Section 2.1.2) 46 soil boring samples representing both surface and subsurface locations were submitted to Quanterra for CLP analysis. As stipulated in the Work Plan and QA/QC Plan, 12 duplicate samples were also submitted to Quanterra for analysis.

Figure 4 presents the respective soil boring locations. Tables 2.1 through 2.7 present a summary of analytical results of the respective analysis at these locations. Only those compounds detected are presented in these tables. Soil boring logs are included as Appendix A. The laboratory analytical results (including the raw analytical data) were previously presented to U.S. EPA in the Data Submittal (McLaren/Hart, 1995). An additional Data Submittal containing the analytical data for 9 soil borings will be submitted to EPA under a separate cover.

2.1.2 Dexsil Field Screening and X-ray Fluorescence Analysis

Soil samples were initially field screened using Dexsil test kits and XRF on-site within the mobile laboratory. Field screening techniques were employed to rapidly assess the extent of potential site-related constituents. These data were used as guidance in determining additional subsequent surface and subsurface soil sampling locations. These field screening results were also used to identify which soil sample aliquots were to be submitted to Quanterra for CLP analysis.

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Prior to initiating full-scale Phase II Investigative activities, an initial evaluation of field screening test methods was conducted. The two test kit methods evaluated were an immunoassay method (DDT in soil test kits manufactured by Millipore) and a chemical extraction method (total chlorinated compounds by Dexsil). Results of the initial test kit evaluation (McLaren/Hart, November 29, 1994) supported the use of the Dexsil test kits for purposes of subsequent field screening of soil samples for total chlorinated compounds. The XRF technique was used to quantify select metals (included arsenic, lead, cadmium, and chromium) concentrations. A complete description of the Dexsil Test Kit and XRF methodologies is presented in the Work Plan.

The initial field screening (October 27 and 28, 1994) revealed that results obtained from the Dexsil test kits were observed to correlate within the confidence intervals of CLP data (McLaren/Hart, November 29, 1994). Therefore Dexsil test kit analysis was found to provide a surrogate measurement for total DDT and metabolites at the site.

A total of 301 soil samples, including Geoprobe® soil boring samples, test pit samples, and sediment samples were analyzed using the Dexsil test kits and XRF techniques. A total of 50 duplicate analyses were performed to check on the quality of the field screening procedures.

2.1.3 Test Pit Sampling

Test pit excavations were completed in the Work Plan to further concentrate on the delineation of select anomalous areas (e.g., the former disposal area, suspected debris areas, and nonvegetated areas). Test pits were excavated at the locations presented in Figure 5. These test pits were intended to further define and assess the nature and extent of potential site-related constituents in the previously reported disposal trench areas and the previously identified subsurface geophysical anomaly.

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Four test pits were excavated in Area A and two were excavated in Area B. The intention of the test pits in Area A was to better define the nature of subsurface materials northwest of Building #29 and to assess a potential buried drum location north of Building #29 (both locations depicted on Figure 5). An additional location in the western portion of Area A was excavated to assess a suspected construction debris fill area. The intention of the test pits in Area B was to assess the area of stressed vegetation in the southeastern portion of Area B and the other was to assess the septic tank area south of the former office building. When unnatural material was found in a test pit excavation, the excavation was continued in the same direction to assess the lateral extent of unnatural material.

Test pit excavation was accomplished using a standard 15 foot reach backhoe. Typical test pit dimensions (measured upon completion) were approximately ten to twenty feet long, three feet wide, and five to nine feet deep. Soils removed during test pit excavations were placed on Visqueen® adjacent to the excavation. Following excavation, logging and sampling of the test pits were completed. Samples were composited in the same manner as Geoprobe® samples (*i.e.*, using the coning and quartering method). Prior to completion of the test pits, test pits were lined with Visqueen® and then excavated soil was backfilled into the test pit in the reverse order of material removal (to the extent practical). At no time were test pits left uncovered overnight, nor was any material removed from the limits of the respective test pit. Following backfilling of test pits, the ends of the pits were staked to facilitate surveying and the surface of the test pit was covered with Visqueen®.

In general, the sample collection strategy for the test pits was to sample from within the waste or presumed waste zone and to sample from beneath the waste or suspected waste zone. Generally, unnatural material was found to correlate with areas observed to be nonvegetated. Test pits excavated during the Phase II Site Investigation are summarized as follows:

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- Area A Test Pits: TP-05, TP-06, TP-07, TP-08
- Area B Test Pits: TP-11, ST-01

Although the Work Plan required the excavation of four test pits within Area C, based on the field conditions observed in Area C, McLaren/Hart, CDM, and U.S. EPA decided not to complete these test pits. The test pit locations within Area B were relocated due to the field conditions encountered and replaced by soil borings. Decisions to relocate or remove test pits from the locations stipulated in the Work Plan were implemented following U.S. EPA approval during field activities.

During excavation, ten soil samples (surface and subsurface) were collected from test pits in Area A for field screening purposes. Six of these samples were also submitted for CLP analysis of the parameters listed below. Three test pit soil samples were collected from test pits in Area B for field screening. One of these samples was also submitted for CLP analysis.

Of these thirteen test pit samples, seven samples were submitted for CLP analysis based on the results of the field screening. As a QA/QC measure, two duplicate samples were also submitted. Test pit samples were submitted to Quanterra for the following analyses:

- TCL VOCs;
- TCL SVOCs and pentachloronitrobenzene (PCNB);
- TCL Pesticides;
- Herbicides;
- Sevin, Malathion, and Rotenone;
- Dioxins;

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- Select Metals (arsenic, cadmium, chromium, and lead); and
- Select General Parameters.

The analytical methods employed during analysis of the above compounds are presented in Table 1. Results of the field screening and CLP results can be found in Tables 3.1 through Table 3.9. The raw analytical data were presented in the Data Submittal (McLaren/Hart, March 27, 1995). Appendix A includes the test pit logs.

2.1.4 Air Sampling

Pursuant to the HASP requirements (McLaren/Hart, August 01, 1994), air monitoring (using a 11.7 electron volt [e.v.] photoionization detector [PID]) was conducted during test pit excavation. In addition, as specified in the Work Plan, a high-volume air sampler was temporarily installed downwind of the test pits in Area A during excavation to determine the potential for air entrainment and transport of site-related constituents.

Air sample collection and preparation followed U.S. EPA Method T04 stipulated protocol. Method T04 utilizes a high-volume air sampler consisting of a glass fiber filter with a polyurethane filter (PUF) backup absorbent cartridge as the collection media for any airborne chemicals. Table 1 summarizes the analytical method used for the CLP analysis of the PUF cartridge.

Figure 5 indicates the placement locations of the air sampler during excavation of the test pits. At all times, the air sampler was located downwind of test pit operations. Table 4 presents a summary of results of the TCL Pesticides analysis conducted on the PUF by Quanterra. Appendix B presents the calculations for the concentration of compounds using the high volume sampler calibration data and the analytical results from Quanterra.

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2.1.5 Sediment Sampling

Sediment sampling was conducted at the nine locations indicated on Figure 6. These sediment sample locations were collected from the following areas:

- Seven sediment samples from the drainage ditches adjacent to Areas A, B, and C;
- One sediment sample from the Building 5 Trench; and,
- One sediment sample from within the Storm Sewer.

Drainage Ditch Sediment Sample

The purpose of the drainage ditch sediment sampling was to ascertain sediment quality in the surface water streams located at the former Pulverizing Services Facility. Drainage ditch sediment sample locations coincided with the surface water sample locations (discussed in Section 2.1.7).

One sediment sample was collected from Area C, two from Area A, and four from Area B. Samples were collected in a downstream to upstream to minimize entrainment of sediments, and were obtained utilizing a stainless steel trowel or spoon. Following collection, samples were described and then composited in the same manner (using coning and quartering techniques) as stipulated in the Work Plan.

Each sample was field screened using Dexsil kits and XRF technology. Results of the field screening are presented in Table 5.1. In addition, each sample, including two duplicate samples, were submitted for CLP analysis (using the methods presented in Table 1) of the following parameters:

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- TCL VOCs;
- TCL SVOCs;
- TCL Pesticides;
- Sevin and Malathion;
- Select Metals (arsenic, cadmium, chromium, and lead); and,
- Select General Parameters.

Figure 6 presents the seven sediment sample locations. Summary results of the CLP analyses are presented in Table 5.2 through 5.9. The complete raw analytical results and data were presented in the Data Submittal (McLaren/Hart, March 27, 1995).

Building #5 Trench Sampling

The trench immediately northwest of Building 5 was visually assessed as required by the Work Plan. The trench was determined to be concrete lined and covered with removable concrete panels. A minimal amount of sediment material was present in the trench and was sampled at the location presented in Figure 6. The sampling was accomplished by attaching a stainless steel spoon to a section of polyvinyl chloride (PVC) pipe which served as an extension. Following collection, the sample was composited (using coning and quartering techniques as stipulated in the Work Plan) and placed in laboratory-supplied jars for field screening and subsequent CLP analysis.

The sediment sample from the Building 5 Trench was submitted for CLP analysis for the following parameters:

- TCL VOCs;
- TCL SVOCs and PCNB;

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- TCL Pesticides;
- Herbicides;
- Dioxins;
- Sevin, Malathion, and Rotenone;
- Select Metals; and,
- General Chemistry Parameters.

Figure 6 includes the location of the Building 5 sediment sample and Tables 5.1 through 5.9 present summaries of the analytical results. Complete laboratory analytical results and raw laboratory data were presented in the Data Submittal (McLaren/Hart, March 27, 1995).

Storm Water Sewer Sediment Sampling

Two storm sewer inlets, identified in Figure 6, were visually assessed for the presence of sediments and indications of potential site-related constituents. Both of the storm sewer inlets are located adjacent to New Albany Road. Only one of the storm sewer inlets, designated STM-01, contained sediment and was therefore sampled.

Sampling was accomplished utilizing a stainless steel spoon to extract a representative sediment sample from the sewer inlet. Following collection, the sample was composited (using the coning and quartering technique as stipulated in the Work Plan) and placed in laboratory-supplied glass jar for field screening and CLP analysis.

The storm sewer sediment sample was submitted for CLP analysis for the following parameters:

- TCL VOCs;
- TCL SVOCs;

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- TCL Pesticides;
- Dioxins;
- Sevin and Malathion;
- Select Metals (arsenic, cadmium, chromium, and lead); and,
- Select General Parameters.

Figure 6 includes the location of this sediment sample and Tables 5.1 through 5.9 present a summary of the analytical results. Complete laboratory analytical results for the data presented in this section were presented in the Data Submittal (McLaren/Hart, March 27, 1995).

2.1.6 Composite Soil Sampling

Composite sampling was performed in order to evaluate the impact, if any, of dioxins at the site. Ten composite samples representing 40 sampling points were analyzed by Quanterra for dioxins (including 2,3,7,8 tetrachlorodibenzo-p-dioxin [TCDD]) in accordance with the analytical method listed in Table 1.

Composite samples were prepared by combining approximately equal soil volumes from respective sampling locations, which represented a single composite sample. The number of sampling locations used to establish each composite sample was four locations. Sampling, compositing, and preparation equipment consisted of stainless steel trowels, bowls and spoons.

Figure 7 depicts each dioxin sample as well as which particular sample sites make up the composite sample. The following is a listing of the particular sampling sites which make up each composite sample.

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- DIOX-01: SB-021, SB-022, SB-023, SB-024;
- DIOX-02: SB-026, SB-027, SB-028, SB-029;
- DIOX-03: SB-001, SB-002, SB-003, SB-004;
- DIOX-04: SB-012, SB-014, SB-030, SB-032;
- DIOX-05: SB-007, SB-008, SB-009, SB-010;
- DIOX-06: SB-015, SB-036, SB-037, SB-038;
- DIOX-07: SB-045, SB-046, SB-047, SB-048;
- DIOX-08: SB-018, SB-019, SB-049, SB-065;
- DIOX-09: SB-055, SB-056, SB-057, SB-058; and,
- DIOX-10: SB-059, SB-060, SB-061, SB-062.

Special decontamination procedures were followed as stipulated in the Work Plan and are discussed further in Section 2.2. Appropriate QA/QC samples were obtained and submitted to the analytical laboratory in accordance with U.S. EPA Region II QA/QC Standard Operating Procedures (SOPs) and as stipulated in the Work Plan. Complete laboratory analytical results for the data presented in the data submittal (McLaren/Hart, March 27, 1995).

Table 7 presents the analytical results of the composite samples dioxin analysis. Complete laboratory analytical results and raw data were presented in the Data submittal (McLaren/Hart, March 27, 1995).

2.1.7 Geotechnical Soil Sampling

Six soil samples were collected and analyzed for select geotechnical parameters to better define soil physical characteristics and to evaluate potential soil treatment technologies. Figure 7 presents the geotechnical sampling locations.

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Three sampling locations representing four individual samples were collected during monitoring well installation activities (described in Section 2.1.7). These samples were collected using either Shelby tubes or split-spoon samplers. The remaining two locations represent a soil boring and a test pit location. For sample collection at these locations, six-inch shelly tube cutoffs were manually pushed into the soils at the proper depths to obtain the samples.

The soil samples were submitted to Quanterra and Professional Service Industries, Inc. (PSI) for the analysis of the following parameters:

- Total Kjeldahl Nitrogen (TKN);
- Ammonia;
- Phosphorous;
- British Thermal Units per pound (BTU/lb);
- Permeability;
- Grain Size Distribution/Classification;
- Moisture Content;
- TOC and pH; and,
- Bulk Density and Specific Gravity.

Figure 7 include the geotechnical sample locations and Table 6 presents a summary of the analytical results. Complete analytical results for the data presented in this section were presented in the Data Submittal (McLaren/Hart, March 27, 1995). Appendix C presents the geotechnical reports submitted by PSI.

2.1.8 Piezometer and Monitoring Well Installation

Piezometer Installation

Twenty-one piezometers were installed within Areas A, B, and C at the locations depicted in Figure 8 to obtain static groundwater potentiometric surface elevation data (presented in Section 2.1.10) and to determine the groundwater potentiometric flow direction. Based on the observed groundwater flow direction and observed soil boring information, appropriate locations were chosen to install groundwater monitoring wells.

Six piezometers were installed in Area C, nine in Area A, and six in area B. The piezometers were installed utilizing the Geoprobe® system. Installation involved advancing a MacroCore fitted with an acetate liner to an average depth of 10 ft-bgs (*i.e.*, three advances of the MacroCore), then the PVC well pipe was inserted into the boring. Each piezometer was fitted with a cap. Piezometer construction materials consisted of 1-1/4-inch (in.) diameter PVC pipe with a 0.010 inch slot size.

Piezometer installation procedures were supervised by a New Jersey state-certified driller from EDI. Following installation of the piezometers top of casing (TOC) elevations were surveyed to an accuracy of 0.01 foot (ft) above mean sea level (msl) vertically, and to 0.1 ft horizontally (on the U.S. Geological Survey [USGS] 1987 National Geodetic Vertical Datum [NGVD]) by a New Jersey state-certified land surveyor (Kelly). Water level measurements were collected and recorded on January 4, 10, 26, February 10, and March 3, 1995. The results of these measurements are presented in Table 9.

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Figure 8 includes these piezometer locations and Table 8 includes a summary of respective piezometer construction details. Piezometer boring and construction logs are included in Appendix A. Surveyor reports are included as Appendix D.

Monitoring Well Installation and Development

Four monitoring wells were installed as a part of the Phase II Investigation. One well was located in Area C, one in Area B and two in Area A. Monitoring well locations were based on the results of potentiometric surface data gathered from two rounds of water level measurements taken in the piezometers (Section 2.1.9). Locations of the newly installed monitoring wells are depicted in Figure 8.

The monitoring wells were installed within the annulus of 4-1/4-in. diameter hollow-stem augers (HSA) immediately following drilling of the respective boreholes. Well construction consisted of setting both five- and ten-foot lengths of 0.01-in. machine-slotted Schedule (Sch.) 40 PVC screens at the bottom of the respective boreholes. Drill cuttings were drummed, labeled and logged as appropriate. Screens were flush-thread jointed to suitable lengths of Sch. 40 PVC riser, extending to approximately two feet above ground surface. A sand pack using Type #0 gravel pack filter media was placed between the screen and the borehole wall through the augers, which were gradually withdrawn from the borehole. At a minimum, one foot of sand pack was placed above the screened interval. A minimum of one foot of bentonite was then placed atop the sand pack and allowed to hydrate. The remainder of the borehole was grouted to ground surface with a standard cement-bentonite (90:10) grout.

Surface completion of monitoring wells included the setting of a four-inch diameter steel protective casing around the PVC well construction. The protective casing was set in a two-foot square concrete apron, and the protective casing was fitted with a locking cap.

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Following well installation, development of the monitoring wells was accomplished using a surge block and a pump. Development was continued until indicator parameters (pH, specific conductance, temperature and relative turbidity) had stabilized. At a minimum, five borehole volumes of water were removed from each monitoring well. Well development water was containerized in 55-gallon (gal) Department of Transportation (DOT)-approved steel drums and transferred to the drum staging area in Building #29.

Following construction and development of respective monitoring wells, the ground surface and TOC elevations of all the wells (to an accuracy of 0.01 foot) were surveyed by a registered professional surveyor, using the 1987 NGVD. These elevations are included in Table 8. Figure 8 includes the location of these newly installed monitoring wells. Soil boring and well construction logs are included in Appendix A. Surveyor reports are included in Appendix D.

2.1.9 Aquifer Analysis

Aquifer analysis activities were comprised of several rounds of potentiometric surface elevation measurements and performance of slug tests to determine groundwater flow directions and to estimate aquifer characteristics.

Potentiometric Surface Elevation Measurements

Groundwater potentiometric surface elevation measurements of existing monitoring wells, piezometers, and newly installed monitoring wells were conducted on four separate occasions. Depths to groundwater from an established surveyed measuring point (mp) were measured in wells and piezometers on four occasions over a two month period to evaluate changes in site groundwater flow conditions over time. Water levels were measured on January 4, 10, 26,

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February 10, and March 3, 1995. The depth to groundwater was measured using an electronic water level meter capable of measuring to 0.01 foot.

Table 9 presents a summary of groundwater potentiometric surface depths and potentiometric surface elevation data for the five monitoring events. These data are presented in the form of potentiometric maps in Figure 9. The resultant groundwater flow conditions are discussed in detail in Section 3.2.2.

Slug Testing

Slug testing, although not a requirement of the Phase II Investigation, was completed within Monitoring Wells MW-1 through MW-10 to attain a better understanding of groundwater conditions at the former Pulverizing Facility. Methodologies followed were consistent with procedures described in a communication to U.S. EPA (McLaren/Hart, February 2, 1995).

Newly installed monitoring wells and existing monitoring wells (Figure 8) were slug-tested to provide an estimate of hydraulic conductivities. Rising-head slug tests were conducted in the 10 monitoring wells on the site. Each slug test involved the relatively instantaneous removal (via bailing) of approximately one-liter of water from the newly installed two-inch monitoring wells and approximately three-liters of water from the existing four-inch monitoring wells and collecting continuous time-recovery measurements over a recovery period. Time-recovery measurements were monitored by a ten pound per square inch (psi) transducer, and data were collected with an automated data logger.

Slug test data were compiled and subsequently evaluated using AQTESOLV (Geraghty and Miller, 1989). A slug test calculation brief is included in Appendix E. This brief indicates

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methodologies, analysis, and results. Table 10 presents the hydraulic conductivity estimates for the wells tested.

2.1.10 Surface Water

Surface Water Sampling

Surface water sampling was conducted at the seven locations indicated on Figure 10. The purpose of the sampling was to ascertain general water quality in the surface water drainage ditches located at the former Pulverizing Services Site. Surface water sample locations coincide with sediment sampling locations.

Samples were obtained by inserting a laboratory-certified clean glass sample jar into the stream water. The sample was then transferred to the appropriate sample bottles (with the exception of VOC samples, in which samples were collected by directly inserting the VOC glass vials into the surface water stream). Sampling activities were conducted in a downstream to upstream fashion to minimize the potential for entrainment and subsequent collection of sediments. Surface water samples appeared to be turbid, possibly with entrained sediment, especially SW-05.

One surface water sample was collected from Area C, two from Area A, and four from Area B. Each surface water sample and two duplicate samples were submitted to Quanterra for CLP analysis of the following parameters (methods summarized in Table 1) :

- TCL VOCs;
- TCL SVOCs;
- TCL Pesticides;
- Sevin, Malathion, and Rotenone;

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- Select Metals (Arsenic, Lead, Cadmium, Chromium); and,
- Select General Parameters.

Figure 10 includes surface water sample locations. Results of the CLP analyses are summarized in Tables 11.1 through 11.6. The complete raw analytical data were presented in the Data Submittal (McLaren/Hart, March 27, 1995).

2.1.11 Groundwater Sampling

Groundwater Sampling was performed following installation and development of the four new monitoring wells (MW-07 to MW-10). Sampling was conducted from the ten shallow groundwater aquifer monitoring wells and from the former plant production well at the site.

General monitoring well development and subsequent sample collection activities were consistent with those presented in the Work Plan. Wells were purged prior to sampling until aquifer indicator parameters (pH, conductivity, temperature, and turbidity) stabilized to within ten percent of the previous readings. A minimum of three borehole volumes of water were removed prior to sampling. Sampling was conducted within three hours of purging for the parameters presented in Table 1.

The ten monitoring wells were purged and sampled utilizing stainless steel bailers. The former plant production well was sampled using a submersible pump fitted with approximately 200-feet of polyethylene pipe.

A total of 11 groundwater samples (one per monitoring well and one production well sample) were submitted for CLP analysis, in addition to two duplicate samples for the following analyses:

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- TCL VOCs;
- TCL SVOCs;
- TCL Pesticides;
- Sevin and Malathion; and,
- Select Metals (Total and dissolved arsenic, cadmium, chromium, and lead).

Figure 10 includes the groundwater monitoring well locations and Tables 11.1 through 11.6 present the analytical result summaries of the respective analyses for all of the groundwater samples. Complete laboratory analytical results for the data presented in this section were presented in the Data Submittal (McLaren/Hart, March 27, 1995). Appendix F presents the groundwater sampling logs.

2.1.12 UST Sampling

The locations of the three USTs were visually inspected. Two USTs were located and subsequently sampled. Their locations are presented on Figure 11. The third UST could not be located. The underground storage tanks were accessed *via* an air vent riser pipe. Product depth and thickness within each tank was measured and recorded. Sampling of the USTs was accomplished by lowering a stainless steel bailer into the UST through the air vent riser pipe.

Two petroleum product samples (one from each UST) were submitted for CLP analysis of Total Recoverable Petroleum Hydrocarbons (TRPH).

Table 12 presents the analytical results of the UST sample analysis. Laboratory analytical results for the data presented in this section were presented in the Data Submittal (McLaren/Hart, March 27, 1995).

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2.1.13 Downhole Camera Survey

As proposed to the U.S. EPA (McLaren/Hart, February 8, 1995) and subsequently approved, a downhole video survey was used to determine conditions (such as depths and presence of fractures/breaks in casing) in the former site production well. Downhole video camera logging was completed using a color video camera capable of transmitting a signal to a video cassette recorder (VCR). The VCR tape was reviewed and the resultant transcribed log is included in Appendix A.

The purpose of the video borehole log was to assess the petroleum product encountered in the production well during pump removal. It was discovered that approximately two-feet of petroleum product was present on the surface of the water in the production well. The depth to the product was 105 feet and 10 inches below top of casing (ft-btoc) and the depth to water was 108 feet and 3.5 inches.

The video survey results suggested that the product present in the production well came from the turbine pump itself, since the integrity of the casing above the product/water surface was in good condition (*i.e.*, no breaks, cracks, splits, *etc.*). Similarly, the casing below the water table appeared to be intact and in good condition and there was no evidence of any petroleum entry point in the screened interval, which begins approximately 260 ft-toc.

Following the video survey, the product in the production well was sampled using a stainless steel bailer. The sample was designated PWP-01 (production well product) and analyzed for the following parameters:

- TRPH; and,
- TCL Pesticides.

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Table 13 includes the analytical results of the PWP-01 sample analysis. Laboratory analytical results for the data presented in this section were presented in the Data Submittal (McLaren/Hart, March 27, 1995).

2.1.14 Well Decommissioning

The former plant production well at the site and the piezometers installed as a task of the Phase II Investigation were abandoned by a New Jersey state-certified well driller. Proper permitting issues and documents for piezometer and production well abandonment were completed and submitted (following New Jersey state requirements) by the well driller.

Piezometer Decommissioning

The piezometers were decommissioned by the following methods:

- The 1-1/4-inch PVC riser was cut to a minimum depth of six-inches below ground surface for each piezometer;
- A tremie pipe was placed into the respective piezometer so as to reach the bottom of the borehole (to the extent possible);
- A cement grout was poured through the tremie pipe and the piezometer was grouted from bottom to top;
- Grouting continued until the grout reached the surface; the grout was permitted to settle for at least a two-hour period;

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- After two hours, additional grout was added by pouring from the surface to the level at which the grout had settled (typically about one-foot bgs); and,
- Topsoil was then placed flush against ground surface.

Former Production Well Decommissioning

The production well was decommissioned by the following methods:

- Prior to sealing of the production well, the petroleum product in the well was bailed to the maximum extent possible;
- Type #0 gravel pack sand was placed in the well to a height of approximately 260 ft-btoc;
- A cement truck with neat cement mixed approximately eight cubic yards of cement grout;
- A 2-1/2-inch PVC tremie pipe was inserted into the well to a depth of approximately 260 ft-btoc;
- A support truck equipped with a pump trailer was brought in and tied in to the tremie pipe and pumping was initiated;
- When cement grout return was observed at the surface, pumping was temporarily halted and the grout permitted to settle; this was repeated until all eight yards of grout was used;

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- The grout was permitted to set-up for two-days and then cement grout was placed as necessary to complete sealing of the well; in addition, the annulus between the well riser pipe and the outer casing was sealed with grout; and,
- As the production well is located on a concrete monument within the former pump-house, no further action was deemed necessary.

2.1.15 Miscellaneous Activities

One concrete chip sample was obtained from the concrete blocks debris located alongside New Albany Road. The objective of collecting this sample was to confirm that the concrete block debris did not contain potential site-related chemical constituents. The sample collected and analyzed in the field using the total chlorinated compound analyzer (*i.e.*, Dexsil kit). Since no detectable concentrations of total chlorinated compounds was observed, the concrete block debris was removed and sent to a concrete recycler. The activities were communicated to U.S EPA facility (Letter to EPA dated Jan. 10, 1995).

In order to facilitate access to site areas potential requiring remediation, gravel was placed at select locations within Areas A and B. These activities were documented in McLaren/Hart's letter to U.S EPA (Letter to EPA dated March 18, 1995). Approximately one to two feet of gravel was placed atop the geotextile liner. Care was taken to ensure that placement of the gravel would not interfere with future site investigation/remediation activities.

During the conduct of the Phase II Site Investigation several 55-gallon metal drums (containing investigation-derived materials) were observed at different site areas. In order to facilitate the appropriate disposal of these materials, the drums were inventoried and moved to locations within Building 29. Drums that contained materials and had deteriorated significantly were not removed

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from their respective locations. In general, these drums contained soil cuttings, decontamination/well development water, and health and safety materials.

2.2 GENERAL METHODOLOGIES

This section summarizes the general protocol followed for the Phase II Site Investigation sampling activities.

2.2.1 Sample Nomenclature

The sample labeling and numbering used for sampling activities within respective media were performed in accordance with the Work Plan, and are as presented in the following examples:

Surface and Subsurface

<u>Soil Sampling</u>	Example:	SB-11B/0-0.5
	where:	SB indicates <u>S</u> oil <u>B</u> oring;
		11 indicates Soil Boring Location <u>11</u> ;
		B indicates that the sample was taken off site; and,
		0-0.5 indicates sample interval from <u>0 - 0.5</u> ft-bgs.

Respective replicate and duplicate QA/QC samples are denoted by the letters R and D.

<u>Test Pit Sampling</u>	Example:	TP-06B/5-6
	where:	TP indicates <u>T</u> est <u>P</u> it sample;
		06 indicates Test Pit location number <u>6</u> ;

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B indicates the point of sampling for that Test Pit location;
and,

5-6 indicates sample obtained from 5-6 ft-bgs.

Respective replicate and duplicate QA/QC samples are denoted by the letters R and D.

Sediment Sampling Example: SED-01
 where: SED indicates drainage ditch sediment sample; and
 01 indicates sample location Number 1.

Respective replicate and duplicate QA/QC samples are denoted by the letters R and D.

Surface Water

Sampling Example: SW-01
 where: SW indicates Surface Water sample; and
 01 indicates Sample location Number 1.

Respective replicate and duplicate QA/QC samples are denoted by the letters R and D.
In addition, surface water sample locations coincide with sediment sampling locations.

Groundwater

Sampling Example: MW-01, PW-01 and PWP-01
 where: MW indicates groundwater sample from a Monitoring
 Well;
 PW indicates a groundwater sample from the Production
 Well;

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PWP indicates a free product sample from the Production
Well and,
01 indicates well location designated 01.

Respective replicate and duplicate QA/QC samples are denoted by the letters R and D.

Composite Sampling

Example: DIOX-01
where: DIOX indicates composite soil samples from a designated
group of soil borings designated for dioxin analysis; and,
01 indicates composite sample from soil boring group
number 1.

Geotechnical Sampling

Example: AP-01/MW-10/0-2 and SH-01/MW-10/0-2
where: AP indicates a soil sample sent for analYTical parameters;
SH indicates a soil sample taken using a Shelby tube for
geotechnical analysis.
MW-10 indicates the location of the geotechnical sample;
and,
0-2 indicates sample obtained from 0-2 ft-bgs.

Trench Sampling

Example: TRENCH-05
where: TRENCH indicates sediment sample from the drainage
trench; and,
05 indicates that the sample was taken from building
number 5 trench.

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Air sampling

Example: AS-01
where: AS indicates the sample was taken from a high volume air sampler; and,
01 indicates that the sample was the first air sample taken.

Septic Tank Sampling

Example: ST-01
where: ST indicates that a sample was taken in the vicinity of the septic tank in area B; and,
01 indicates that the sample was the first soil sample taken at this location.

Underground Storage Tank

Sampling

Example: UST-1
where: UST indicates that a product sample was taken from an underground storage tank; and,
1 indicates that the sample was the first product sample taken.

Storm Sewer Sampling

Example: STORM-01
where: STORM indicates a storm sewer sediment sample; and
01 indicates sample location number 1.

Concrete Chip

Sampling

Example: CONC-01
where: CONC indicates a concrete chip sample; and,

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01 indicates that the sample was the first concrete chip sample taken.

Field Blank

Sampling

Example: FB-01

where: FB indicates field blank; and,

01 indicates the first field blank sample per calendar day.

Field Blanks are delineated by the date of the sample.

2.2.2 Sample Collection, Handling and Shipping

Actual sampling methodologies followed for soil, sediment, surface water, groundwater, air, and UST sampling activities were as stipulated in the Work Plan, or as discussed in Section 2.1, and are therefore not reiterated in this section.

As applicable to the sampled media (including soil, sediment, groundwater, *etc.*) and the Work Plan requirements, samples were collected in the following order:

- TCL Volatile organics;
- TCL Semi-volatile organics;
- TCL Pesticides;
- Herbicides;
- Sevin, Malathion and Rotenone;
- Total and dissolved (for groundwater) metals;
- Select general chemistry parameters;
- Dioxins; and,
- Field screening parameters.

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Following sampling, samples were assigned unique sample numbers (as discussed in Section 2.2.1), preserved (as required pursuant to laboratory and CLP protocol), packed in iced coolers with bubble pack for protection against damage during transport, and were transported under internal or external COC at all times. Samples stored on-site were stored in a 4°C mobile refrigerator. Samples were shipped under COC to the analytical laboratory via overnight express in a cooler which was secured with reinforced plastic tape and custody seals.

2.2.3 Decontamination Activities

Field decontamination was conducted in compliance with the procedures presented in the Work Plan for the following activities and equipment:

- Drilling rig, tools, and equipment;
- Geoprobe tools and equipment;
- Soil (surface and subsurface) sampling equipment;
- Sediment sampling equipment;
- UST sampling equipment;
- Groundwater sampling equipment; and
- Test pit sampling equipment.

In general, decontamination procedures involved the following successive steps (as appropriate):

- Pressure steam cleaning;
- Tap water rinse;
- Low phosphate detergent rinse;
- Tap water rinse;
- Nitric acid rinse;

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- Distilled deionized water rinse;
- Solvent rinse;
- Distilled deionized water rinse;
- Air drying; and,
- Wrap in aluminum foil.

The solvent rinse step for most decontamination procedures utilized acetone. However, as stipulated in the Work Plan, trichloroethylene was utilized to clean equipment used in dioxin composite sampling.

A decontamination station was constructed northeast of Building 29. The decontamination station was a diked basin approximately 150 square feet by 8 inches high utilized for equipment decontamination, for collection of decontamination fluids from drilling and test pit activities, and for removal and decontamination of PPE equipment. The station was double lined with plastic membrane and contained two tables used for decontamination and drying. Spent decontamination fluid and PPE was placed in 55 gallon drums which were then labeled with their contents. Fluids retained in the decontamination station were pumped into a 55 gallon drum using a sump pump. Following completion of field activities, the membrane lining the decontamination pad was then placed in a 55 gallon drum.

2.2.4 Data Validation

Data validation was performed by an independent contractor (EDS) in accordance with the following:

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- The U.S. EPA-approved Work Plan and QA/QC Plan;
- Metals validation - U.S. EPA, January 1992;
- Organics validation - U.S. EPA, January 1992;
- Dioxins - U.S. EPA, June 1993; and,
- Other method-specific criteria.

Data collected during the Phase II Site Investigation fall under the following U.S. EPA Data Quality Objectives (DQOs):

- DQO Level I - Field Screening using PID;
- DQO Level II - Field Screening using Dextsil and XRF; and,
- DQO Level IV - Full CLP deliverable.

A review of the data validation (including data assessment narratives) is presented in Section 17.0 of the Data Submittal (McLaren/Hart, March 27, 1995). The results and review of additional delineation (10 samples) will be provided under a separate cover. The results of the data validation indicate that no major data quality issues were identified. Minor data quality issues related to the data are noted and explained in detail in Section 17.0 of the Data Submittal. Most of these issues typically related to the following:

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- Pesticides compound identification criteria were difficult to assess due to elevated concentrations of potential site-related constituents; and,
- Elevated detection limits - due to elevated pesticides concentrations detected.

These are typical issues identified in data validation. The data collected in this investigation do not appear to pose any problems with data quality or project objectives.

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3.0 RESULTS OF THE PHASE II SITE INVESTIGATION

This section summarizes results of the Phase II Site Investigation tasks, including, the results of the literature survey, a description of site physical characteristics (including regional geology and hydrogeology), a description of the environmental quality of the site, and the results of QA/QC activities performed.

3.1 RESULTS OF LITERATURE SURVEY

Pursuant to Work Plan requirements, a literature search was conducted (for the vicinity of the site) to evaluate the following:

- The presence of public and private groundwater wells within one mile of the site;
- The location of the site with respect to potential flood plains;
- The location of the site with respect to potential wetlands; and,
- The potential of archaeological resources of historic significance in the vicinity of the site.

The following sections provide a summary of each of the above.

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3.1.1 Public and Private Well Inventory

A well inventory for both public and private wells within one mile of the site was requested from the State of New Jersey. Appendix G presents the listing submitted to McLaren/Hart following this request. NJDEP Bureau of Water Allocation records do not show the presence of any shallow wells with the exception of monitoring wells in the vicinity of the site.

The Township of Moorestown supplies drinking water to the residents (approximately 1,000 in number) in the vicinity of the site. This drinking water is derived from the Magothy and Raritan Formations (sand and gravel described in detail in Section 3.2). A total of six wells within three well fields were identified. All wells are reportedly screened between 300 to 385 ft-bgs and pump at an approximate rate of 700 to 1,000 gallons per minute (gpm).

3.1.2 Wetlands Determination

Pursuant to Work Plan requirements, McLaren/Hart evaluated the National Wetlands Inventory (NWI) map (from the U.S. Fish and Wildlife Service) and a U.S. Department of Agriculture (U.S. DA) Soil Survey from the Soil Conservation Service (SCS) for the site area to identify potential jurisdictional on-site wetlands. In addition, the 1987 Corps of Engineers (COE) Wetland Delineation Manual was used to make a preliminary determination in conjunction with the above-referenced sources to identify potential wetland indicators. The findings are as follows:

- The NWI map does not identify the presence of on-site wetlands;
- According to the 1987 COE Manual three criteria must be present to confirm the presence of a jurisdictional wetland: hydrology, hydrophytic vegetation, and

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hydric soils. Soils must be inundated or saturated for a minimum of at least two weeks each year in order to support hydrophytic vegetation; and,

- According to the SCS Soil Survey for Burlington County, onsite soils are defined as Sassafras fine sandy loam, clayey substratum, 0 to 2 percent slope (ShA). The Sassafras series consists of well-drained, moderately coarse textured soils. Mr. Kenneth Taffe, Burlington District Conservationist, confirmed via telephone correspondence on October 13, 1994.

Therefore, since the NWI map does not delineate the presence of on site wetlands and non hydric soils exist on site, wetlands were not identified at the site.

3.1.3 Historic Cultural Resources Survey

McLaren/Hart submitted a request (McLaren/Hart, October 11, 1994) to the NJDEP State Historic Preservation Office (SHPO) for a Stage 1A Cultural Resource Survey to identify potentially protected historic resources at the site. This written request was followed up with a verbal request in January 1995. To date, no response has been received. Appendix H presents a copy of this request. In addition, no obvious historical resources were observed in the site vicinity.

3.1.4 Flood Plain Evaluation

Pursuant to Work Plan requirements, a letter was submitted (included in Appendix H) to Pennoni Associates (Township Engineers) for the City of Moorestown documenting the location of the 100-year and 500-year floodplain in the vicinity of the site within Burlington County, New Jersey. Based on our discussions with Mr. Lou Bott (Township Engineer), it was determined

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that according to the Federal Emergency Management Agency (FEMA), the site is not located within or even near a 100 or 500 year floodplain. Rather, the site is situated at one of the higher points in Moorestown Township.

3.2 SITE PHYSICAL CHARACTERISTICS

This section presents a brief summary of the regional geology and hydrogeology in the vicinity of the site followed by a detailed analysis of the site-specific geology and hydrogeology.

Regional Geology and Hydrogeology

Regionally, the site is located in the Atlantic Coastal Plain Physiographic Province in a transition zone between the Englishtown Formation and the Woodbury Clay. The site-specific unconsolidated sediments of the Coastal Plain include (oldest to youngest) the Magothy and Raritan Formation, Merchantsville Formation, and the Woodbury Clay, which are all Cretaceous in age. Beneath the site, bedrock (Wissahickee Formation [schist]) is estimated to be 450 feet below ground surface (ft-bgs).

The primary stratigraphic unit underlying the site is the Pennsauken Formation which is Pleistocene in age. The Pennsauken Formation is described as a red sand and is present at the facility from ground surface to approximately 10 to 20 ft-bgs. At locations where the Pennsauken Formation is absent, the sand and sandy clay lenses of the Cretaceous Age Englishtown Formation is present. Both of the sand units terminate at the Woodbury Clay, which is encountered from approximately 10 to 20 ft-bgs. The drilling log for the former production well (included in Appendix A) at the site indicates a combined thickness for the Woodbury Clay and the underlying Merchantsville Formation to be approximately 126 ft. These units are underlain by the Magothy and Raritan Formations, which begin with approximately 100

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ft of a tough, blue clay prior to reaching the permeable unconsolidated materials (primarily sand and gravel), which begins at approximately 250 ft-bgs.

The shallow unconfined unit or water table aquifer is located within a combination of the Quaternary sediments (Pennsauken Formation) and the thin or absent sand and clay of the Englishtown Formation. The water table is typically encountered at between five to ten ft-bgs.

Beneath the unconfined unit or water table aquifer is the confining unit (clay). This unit is comprised of the Woodbury Clay which functions, along with the uppermost clay of the Magothy and Raritan Formations, as a confining unit between the aquifer of the Magothy and Raritan Formation. These clay units are interrupted by a ten foot sand layer (Merchantsville Formation). Inspection of well logs obtained during the literature search as well as previous site specific investigations indicate that this confining unit is laterally continuous throughout this area of New Jersey. The combined thickness of the confining units including the Woodbury Clay, Merchantsville Formation, and the Magothy and Raritan Formations is approximately 225 ft.

The deep unconfined unit is composed of the sediments (predominantly sands and gravels) of the Magothy and Raritan Formations, which are overlain by the stiff clay within the same formation. These materials serve as the potable water aquifer for Burlington County (as discussed in Section 3.1.1).

3.2.1 Site Geologic Conditions

Site geologic conditions were generally consistent with those presented within Section 3.2 (Regional Geology) and as presented in historical site information and literature reviewed. An understanding of geologic conditions underlying the site was obtained on the basis of the newly completed borings (depicted on Figure 4), newly installed monitoring wells and piezometers

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completed during the (Phase II Site Investigation) and the borings/wells completed during the Phase I Site Investigation (PCR, April 1993). A review of these data in conjunction with information from literature searches and previous investigations have been used to provide a thorough understanding of the presence and distribution of subsurface lithologic units across the former Pulverizing Services site.

In general, in the order of approximate increasing depths (in ft-bgs), the former Pulverizing Services site contains the following subsurface units:

- Red sand with gravel and some silty, sandy clay (typically 0 to 18 ft-bgs);
- Stiff blue clay with reddish brown staining (typically 9 to 128 ft-bgs);
- Gray sand (typically 128 to 147 ft-bgs);
- Tough, blue gray clay (typically 147 to 250 ft-bgs); and,
- Coarse sand and gravel with silt and clay layers (typically 250 to 318 ft-bgs).

The surficial materials across the site in Areas B and C are observed to be natural sand with gravel and clayey sand/silt. Localized nonvegetated areas indicate the presence of other surficial material. In areas B and C these nonvegetated areas are either gravel-filled access roadways or very small localized gravel/sand/sulfur debris piles. Area A is mostly paved with concrete or asphalt roadways. In the location of the former disposal trenches (Figure 2) the natural subsurface materials were replaced by what appeared to be heterogenous waste materials. These materials were also encountered surficially at soil borings SB-007, SB-011, SB-014, SB-035, SB-060, SB-063, and SB-074. An anomalous area of drum disposal was identified, in addition to

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another anomalous area where construction debris from a former plant fire was identified. The locations are presented in Figure 2.

Geotechnical analysis of subsurface materials corroborate the lithologic boring log descriptions. These geotechnical data are included in Table 6. Natural shallow subsurface materials consist of approximately 40 to 70% sand, 15 to 30% silt, and 15 to 30% clay. The gravel from the gravel/sand/sulfur anomalous areas contains approximately 75% sand and gravel, with the remainder being silt and sand.

Test pit designated TP-08 was completed to determine the location of subsurface buried material identified during previous geophysical investigations. Approximately nine rusted metal drums with various colored (red and pink) powdery materials were noted in this area, as shown on Figure 5.

The clay unit underlying the upper sand appears to be laterally continuous throughout the site (including the test pits). It was encountered within soil boring locations in the vicinity of the test pit locations TP-06 and TP-07 at an approximate elevation of 53 feet (9 ft-bgs) above mean sea level (ft-msl). This unit comprises 95% silty and clay with a vertical hydraulic permeability of 9.1×10^{-9} centimeters per second (cm/sec), which is consistent with natural clay values reported in the literature (as reported in Table 6).

3.2.2 Site Hydrogeologic Conditions

Site hydrogeology is primarily controlled by the presence of the surficial unit consisting of red sand and gravel with silt and clay-rich zones, the stiff, low permeable clays, and the deep sands and gravels beneath the clay. These factors affect site hydrogeology and result in the development of the following primary hydrogeologic regimes:

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- An upper shallow unconfined unit (or water table aquifer) located within the red sand and gravel with silt and sandy clay-rich zones approximately 10 to 20 ft thick;
- A confining layer consisting of approximately 125 feet of an extremely low permeable clay (9.1×10^{-9} cm/sec), followed by approximately 10 feet of a sand layer, and finally another 100 feet of very stiff clay; and,
- A deeper (starting at approximately 225 ft-bgs, more productive confined artesian groundwater unit (potentiometric surface elevation at approximately -44 ft-msl [100 ft-bgs]) consisting of sands and gravels, with no apparent hydrologic connection with the overlying unconfined unit.

Groundwater potentiometric surface elevation measurements of existing monitoring wells, piezometers, and newly installed monitoring wells were measured on five separate occasions, as indicated in Section 2.1.8. Results of the potentiometric surface monitoring task are presented in Table 9. Figure 9 depicts the resultant shallow groundwater potentiometric flow pattern interpreted. Review of these figures indicate two predominant groundwater flow directions appearing to emanate from Area A. One flow direction is to the northwest (with an average hydraulic gradient of 0.02 foot per foot [ft/ft]) and the other to the southwest (with an average hydraulic gradient of 0.005 ft/ft), both eventually discharging towards the North Branch of the Pennsauken River. These flow directions are consistent with those reported for the regional groundwater flow direction.

Slug tests (results summarized in Table 10) performed on the existing site monitoring wells indicate that the shallow groundwater aquifer hydraulic conductivities range from 2.2×10^{-3} to 7.0×10^{-5} centimeters per second (cm/sec) with an average geometric mean hydraulic

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conductivity of 2.5×10^{-4} cm/sec. These hydraulic conductivity values for a clayey/silty sand (with gravel) are consistent with reported literature values (Todd, 1980). Slug tests were not conducted for the former production well. Laboratory geotechnical testing of a sample of the stiff clay from a depth of 14 to 15.5 ft-bgs indicated a vertical hydraulic conductivity of 9.1×10^{-9} cm/sec (as reported in Table 6). This value is consistent with literature reported values of the vertical hydraulic conductivities of natural clay materials. Vertical hydraulic gradients between the shallow unconfined aquifer and the deeper sand and gravel aquifer is calculated to be approximately 0.04 ft/ft.

Based on the hydraulic conductivities from slug test results (Table 10, and Appendix E), and the hydraulic gradients, the horizontal and vertical groundwater flow velocities are calculated using the following equation:

$$V_s = \frac{Ki}{n}$$

Where:

- V_s = seepage velocity (ft/day)
 K = hydraulic conductivity (ft/day) - 0.70 ft/day
 i = hydraulic gradient (ft/ft)
 n = effective porosity (dimensionless) - assumed as 0.25 for sand unit.

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Based on this equation, the calculated seepage velocities are:

Horizontal Shallow Sand Aquifer

- Northwesterly and westerly flow direction = 0.06 ft/day; and,
- Southwesterly flow direction = 0.014 ft/day.

Vertical Shallow sand aquifer to deep sand and gravel aquifer (using the hydraulic conductivity value for the clay unit as 9.1×10^{-9} cm/sec).

- 1.9×10^{-9} ft/day.

3.3 ENVIRONMENTAL QUALITY

This section discusses the results of the various field sampling activities and summarizes the general environmental quality of the site following the completion of the tasks presented in Section 2.0. Section 2.0 also details the chemical analysis performed by Quanterra on the site media (*i.e.*, soil, test pits, sediments, groundwater, surface water). The discussion on environmental quality is presented based on analysis performed for that respective environmental media.

3.3.1 Soil/Test Pit/Sediment Quality

Throughout the implementation of the Phase II Investigation, HNu® readings were taken as required by the HASP (McLaren/Hart, August 01, 1995) for each specific investigative event. Field results indicated that at no time during any of the field investigative activities were HNu® concentrations above background observed. Appendix A (boring logs) include the field air monitoring logs.

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Soil Borings

Soil samples were collected for laboratory analysis at the 99 borehole locations (on- and off-site) indicated in Figure 5. In addition one surface soil sample was collected to help determine the soil quality in the areas of gravel placement. Table 2.1 through 2.7 summarize the respective analytical results of these soil samples.

Physical description data (from previous investigations and boring logs included in Appendix A) have been used to develop an understanding of site subsurface conditions. The distribution of chemical constituents in soil are as follows:

- Field Screening (Total chlorinated Compounds): Field screening concentrations of total chlorinated compounds ranged in concentration from <0.2 to 2,000 mg/Kg. The following were noted:
 - Site surface soil concentrations ranged from 0.3 to 1,825 mg/Kg;
 - The 1 to 2 ft-bgs sample concentrations generally ranged from 0.3 to 1,731 mg/Kg;
 - The 3-4 ft-bgs sample concentrations ranged from <.02 to 1,141 mg/Kg;
 - Area A was observed to indicate the highest surface soil concentrations (0.7 to 1,825 mg/Kg) and subsurface soil concentrations (0.2 to 1,731 mg/Kg); and,

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- Area B and C indicated significantly lower surface (0.3 to 164.6 and 0.5 to 3.8 mg/Kg) and subsurface (0.3 to 6.51 and <0.2 to 1.8 mg/Kg) concentrations, respectively.

Figure 12 indicates the general surficial distribution of total chlorinated compounds within Site Areas A, B, and C. Figures 13 and 14 summarize this distribution for the 1-2 foot and 3-4 foot subsurface intervals, respectively. Off site area concentration levels were included in the evaluation of Area A field screening.

- XRF metals distribution was as follows:
 - Arsenic surface (<1 to .41 mg/Kg) and subsurface (<1 and 87.7 mg/Kg);
 - Cadmium surface (<1 to 15.4 mg/Kg) and subsurface (<1 to 11.4 mg/Kg);
 - Chromium surface (<1 to 411.4 mg/Kg) and subsurface (<1 to 137.9 mg/Kg); and,
 - Lead surface (<1 to 598 mg/Kg) and subsurface (<1 to 1,194 mg/Kg).
- VOCs: Acetone was the only VOC detected at or above the analytical method detection level (Table 2.2). Since acetone was used in the solvent rinse step during decontamination (Section 2.3), and was present in the field blank analytical results, it is believed that the observed acetone concentrations (between <11 to 16 µg/Kg) may be attributable to the general field activities.

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- SVOCs: Of the extensive soil sampling completed, the following three SVOCs were detected within site soils (Table 2.3):
 - Phenol was detected at the SB-009 (8,400 $\mu\text{g/Kg}$) and SB-012 (410 $\mu\text{g/Kg}$) locations; the remaining samples indicated non-detected levels of phenol concentrations;
 - 4-Chloroaniline was detected at the SB-009 (760 $\mu\text{g/Kg}$) location; and,
 - Hexachlorobenzene was detected at only the SB-007 (200,000 $\mu\text{g/Kg}$) sample location.

In addition to these three SVOCs, several PAH compounds were detected in site soils, most of which were flagged J , indicating that the concentration reported is estimated, whereas brackets, (), indicate that the analyte was detected at concentrations below the analytical method detection level. Table 2.3 presents a summary of these PAH concentrations.

- Pesticides: The most commonly detected group of chemicals were the pesticides, as presented in Table 2.4. Of these, the following were the most frequently detected:
 - DDT ranged in concentrations from <9.8 $\mu\text{g/Kg}$ to 6,800,000 $\mu\text{g/Kg}$ (SB-007);
 - DDE ranged in concentration from 0.44 $\mu\text{g/Kg}$ to 42,000J (SB-007); and,

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- DDD ranged in concentration from 4.2J $\mu\text{g/Kg}$ to 360,000 (SB-007).
- Dieldrin concentrations ranged from $< 4.3 \mu\text{g/Kg}$ to 2,200,000 $\mu\text{g/Kg}$ (SB-007);

In general the following additional observations were made with respect to pesticides:

- The highest pesticide concentrations were observed in Area A;
- Subsurface soil pesticide concentrations were typically significantly lower than surface soil pesticide concentrations with the exception of the disposal trench area; and,
- Other minor pesticides detected in site soils include J values of alpha-, beta-, gamma-, and delta-BHC, aldrin, Endosulfan I, endrin, methoxychlor, and endrin ketone.

Figure 15 presents a depiction of surface soil DDT, DDD, and DDE concentrations determined in the analytical laboratory. Figure 16 depicts the dieldrin distribution in surface soils. The distributions of these pesticides are similar to results presented in Figure 12 using the field screening data.

- Sevin and Malathion: Sevin concentrations ranged from < 33 to 23,000 $\mu\text{g/Kg}$ (SB-014) and Malathion concentrations ranged from < 17 to 260 $\mu\text{g/Kg}$ (SB-010). Area A demonstrated the highest sevin and Malathion concentrations. Subsurface concentrations were typically lower than surface concentrations. These data are presented and summarized in Table 2.5.

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- Metals: Table 2.6 presents the CLP soil sample metal results. Arsenic concentrations ranged from 1.7 to 53.7R mg/Kg (SB-036); cadmium was undetected; total chromium concentrations ranged from 4.8 to 23.2 mg/Kg; hexavalent chromium was undetected; and lead ranged in concentration from 5.1 to 531 mg/Kg (SB-036).
- General Parameters: TOX concentrations ranged from < 1 mg/Kg to 2,400 mg/Kg (SB-007). Total solids ranged from approximately 71 to 90%.

3.3.2 Test Pits

Soil samples were collected from test pits at the locations presented in Figure 5. Tables 3.9 through 4.1 present the tabulated analytical results of detected test pit sample concentrations. A brief summary of these results follows:

- VOCs: Concentrations of chloromethane, acetone, chloroform, toluene, chlorobenzene, 2-butanone, tetrachloroethene, and 1,2-dichloroethane were detected in test pit samples (Table 3.2).
- SVOCs: Hexachlorobenzene was detected at TP-07A (2,600 µg/Kg) and TP-08A (1,400J µg/Kg) (Table 3.3). Several PAH compounds were detected, most within TP-11A and TP-11B. Results of these analyses are presented in Table 3.3.
- Pesticides: Test pit samples indicated the highest pesticide concentration of all soil samples collected at the site, as indicated in Table 3.4. Of these test pits, TP-06B and TP-07A were indicative of the material present within the former disposal trenches. Samples TP-06C, TP-07B and TP-07C are indicative of pesticide concentrations in the natural subsurface materials. The TP-11A sample is indicative of pesticide

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concentrations in the gravel/sand/sulfur pile within Area B. Data from test pit sample TP-11B indicate that pesticide concentrations within the natural subsurface materials underlying the gravel/sand/sulfur pile are lower than the surficial materials.

- Sevin, Malathion and Rotenone: Sevin was detected in most test pit samples at concentrations ranging from <250 to 2400,000 $\mu\text{g/Kg}$; however, the deeper natural subsurface material samples had lower concentrations of sevin than the trench material samples. Malathion was detected in the samples of the disposal trench material at a concentration of 120 $\mu\text{g/Kg}$. Rotenone was only detected within TP-06B at a concentration of 2,300 $\mu\text{g/Kg}$.
- Dioxins: As indicted in Table 3.6, dioxins were undetected in test pit samples.
- Metals: Metals results (Table 3.8) did not indicate elevated concentrations of arsenic (1.5 to 147 mg/Kg), cadmium (<0.23 to 8.9 mg/Kg), chromium (0.51 to 79.4 mg/Kg), Cr (VI) (1J to 2J mg/Kg), and lead (3.3 to 45.6 J mg/Kg).
- General Parameters: TOX concentrations ranged from <1 to 1,400 mg/Kg. Trench materials indicated significantly higher TOX concentrations when compared to natural subsurface soil materials.

3.3.3 Sediment Quality

Seven sediment samples were collected from the drainage ditch locations depicted in Figure 6. The sediment sample locations coincided with the surface water sampling locations. The sediment samples are designated SED-01 to SED-07. One sediment sample from the trench (designated TRENCH-05) was collected (Figure 6). One sediment sample from the storm sewer

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inlet (designated STM-01), also depicted in Figure 6, was collected. The results of the sediment sampling are presented in the following subsections:

Drainage Ditch Area Sediments

- VOCs: In general, VOCs were not observed above the limits of detection in the drainage ditch sediment sample locations (SED-01 to SED-07). Results are presented in Table 5.2.
- SVOCs: In general, SVOCs were not observed above the limits of detection in the drainage ditch sediment sample locations (SED-01 to SED-07). Compounds detected in the drainage ditch sediment samples at concentrations above the detection limits included phenol (< 440 to 2,500 $\mu\text{g/Kg}$), 4-Chloroaniline (< 440 to 8,000 $\mu\text{g/Kg}$) and bis(2-ethylhexyl)phthalate (250 to 420 $\mu\text{g/Kg}$). Results are presented in Table 5.3.
- TCL Pesticides: Seven pesticides were detected in the drainage area sediment samples, including alpha-BHC, endosulfan I, dieldrin, DDE, DDD, DDT and methoxychlor. The highest pesticide concentration was DDT, detected at concentrations ranging from 190 to 120,000 $\mu\text{g/Kg}$ (Table 5.6). Sample SED-07 contained the highest pesticide concentrations.
- Sevin and Malathion: Sevin was detected at concentrations ranging from 440 to 690 $\mu\text{g/Kg}$ in samples SED-01, SED-02, SED-05 and SED-07, while Malathion was detected in only two locations, SED-01 and SED-03, at 160 and 440 $\mu\text{g/Kg}$, respectively (Table 5.5).

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- Metals: CLP Metal results are presented in Table 5.8. Arsenic concentrations ranged from 2.6 to 27.4 mg/Kg. Cadmium was only detected in one location (SED-05) at a concentration of 2.5J mg/Kg. Chromium was detected at concentrations ranging from 8.6 to 26.5J mg/Kg. Lead concentrations ranged from 13.5 to 136J mg/Kg.
- General Parameters: Total solids for the drainage area sediment samples ranged from 42.5% to 80.2%. Hexavalent chromium was not detected in any of the samples.

Building 5 Trench Sediment Sample

- VOCs: Tetrachloroethene was the only VOC detected in the Trench-05 sample, at an estimated concentration of 10 $\mu\text{g/Kg}$, which was below the analytical method detection limit (Table 5.2).
- SVOCs: In addition to several PAH compounds detected, pentachloronitrobenzene was detected at 48,000 $\mu\text{g/Kg}$. Please refer to Table 5.3 for details.
- TCL Pesticides: Seven pesticides were detected in the trench sediment sample. The highest pesticide concentration was methoxychlor at a concentration 40,000D $\mu\text{g/Kg}$ (Table 5.6).
- Sevin, Malathion and Rotenone: Sevin was detected at an estimated concentration of 3,600 $\mu\text{g/Kg}$; Malathion was detected at a concentration of 170 $\mu\text{g/Kg}$; and Rotenone was detected at an estimated concentration of 30,000 $\mu\text{g/Kg}$ (Table 5.5).

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- Dioxins: Two dioxins were detected in the trench sediment sample. The compounds were 1,2,3,4,7,8,9-HpCDF detected at 8.7 $\mu\text{g/Kg}$ and OCDD detected at 0.12 $\mu\text{g/Kg}$. Table 5.6 presents results of the dioxin analysis for the trench sediment sample.
- Metals: CLP Metals results are presented in Table 5.7. Arsenic was detected at 9.2 mg/Kg, cadmium at 56.7 mg/Kg, chromium at 90.2 mg/Kg and lead was detected at an estimated concentration of 1020 mg/Kg. Hexavalent chromium was not detected.
- General Parameters: Total solids for the trench sediment sample was 69.6%.

Storm Sewer Sediment Sample

- VOCs: In general, VOC concentrations were below their limit of detection. Acetone and methylene chloride were the only VOCs detected (Table 5.2) at concentrations above their respective method detection limits. Both of these compounds are common lab contaminants.
- SVOCs: SVOC concentrations were generally below the limits of detection. The only SVOC detected at a concentration above the method detection limit was fluoranthene at 590 $\mu\text{g/Kg}$ (Table 5.3).
- TCL Pesticides: Only four pesticides were detected at concentrations above their respective method detection limits. These included dieldrin at 100J $\mu\text{g/Kg}$, DDE at 650J $\mu\text{g/Kg}$, DDD at 1,500JD $\mu\text{g/Kg}$ and DDT at 2,900D $\mu\text{g/Kg}$. Table 5.4 presents the results of the pesticide analyses for this sample.

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- Sevin and Malathion: Sevin was the only herbicide detected at a concentration of 9,600 $\mu\text{g/Kg}$. Table 5.7 presents the results of the herbicide testing.
- Metals: Total metal results are presented in Table 5.8. Arsenic was detected at 9.1 mg/Kg, cadmium at 4.2 mg/Kg, chromium at 21.5 mg/Kg, and lead was detected at an estimated concentration of 127 mg/Kg.
- General Parameters: Total solids for the storm sewer sediment sample was 71.1%.

3.3.4 Groundwater and Surface Water Quality

Groundwater quality is assessed based on the 10 monitoring wells and the former plant production well sampled during the Phase II Investigation sampling event of February 8 and 9, 1995. This assessment discusses shallow groundwater quality and deep groundwater quality. The groundwater quality data for both shallow and deep groundwater are presented in Tables 11.1 through 11.6.

Shallow Groundwater Quality

Shallow groundwater quality is based on analytical data obtained from ten shallow monitoring wells (designated MW-01 through MW-10) at the site. Shallow monitoring wells are defined as those wells screened in the shallow unconfined or water table aquifer. Figure 8 depicts the locations of these shallow monitoring wells.

- VOCs: Low concentrations of seven VOCs were detected in shallow site groundwater (Table 11.1). These compounds are acetone, carbon tetrachloride, benzene, tetrachloroethene, chlorobenzene, ethylbenzene and xylene. The highest total

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concentrations of VOCs were detected in monitoring well MW-07, located proximal to the former disposal trenches.

- SVOCs: Four SVOCs were detected in shallow site groundwater (Table 11.1). These compounds included 4-methyl phenol (< 10 to 10 $\mu\text{g/L}$), naphthalene (< 10 to 170 $\mu\text{g/L}$), 2-methylnaphthalene (< 10 to 390 $\mu\text{g/L}$) and diethylphthalate (< 10 to 24 $\mu\text{g/L}$).
- TCL Pesticides: Of the twenty-eight pesticides in the TCL pesticide list, low concentrations of twelve pesticides were detected in shallow site groundwater (Table 11.3). MW-07 and MW-05 contained the highest pesticide concentrations.
- Sevin and Malathion: Sevin was detected at 1,600 $\mu\text{g/L}$ in MW-05, and 790 $\mu\text{g/L}$ in MW-07. Malathion was not detected in shallow groundwater samples (Table 11.4).
- Metals: Total metal and dissolved metal results are presented in Table 11.5 and 11.6. Results of total metals analyses showed that arsenic concentrations ranged from 2.9 to 771 $\mu\text{g/L}$; cadmium ranged from 7.3 to 49.6 $\mu\text{g/L}$; chromium ranged from 24.4 to 444 $\mu\text{g/L}$; lead ranged from 6.3 to 142 $\mu\text{g/L}$. MW-10 contained the highest total metal concentrations.

Results of the dissolved metal analyses showed that arsenic was primarily undetected; cadmium concentrations ranged from 41.8 to 63.3 $\mu\text{g/L}$; chromium was detected in two wells (MW-05 and MW-02) at 18.9 and 494 $\mu\text{g/L}$, respectively; lead concentrations were estimated to range from 2.7 to 156 $\mu\text{g/L}$. MW-02 contained the highest dissolved metal concentrations.

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Low pH (<1 S.U.) was observed in groundwater collected from MW-02 during purging. This may account for the elevated concentrations of total and dissolved metals concentrations within MW-02.

Deep Groundwater Quality

Deep groundwater quality is assessed with respect to the analytical data obtained through sampling of the former site production well (Figure 8). Deep groundwater is defined, for the purpose of this investigation, as that groundwater within the confined artesian sand and gravel unit which exists below the confining Woodbury clay and the clay of the Magothy and Raritan Formation.

Results of the production well groundwater sampling are provided in Tables 11.1 through 11.6 and summarized below:

- No VOCs were detected;
- Only one SVOC (N-nitrosodiphenylamine) was detected at an estimated concentration of 0.9 µg/L;
- No pesticides were detected;
- No Sevin and malathion were detected; and,
- All total and dissolved metals were not detected.

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An approximately two-foot thick layer of petroleum product was measured in the former site production well prior to the groundwater sampling. Several measurements were taken at the production well to determine the depth to water as well as depth to product. The depth to product was determined as accurately as possible to be 106.4 feet below top of casing (ft-toc). Depth to water was measured to be 108.6 ft-toc, indicating a product thickness of 2.1 ft. A sample of this petroleum product (designated PW-01-oil) was obtained and submitted for the analyses of TCL Pesticides, Total Recoverable Petroleum Hydrocarbons (TRPH).

Results indicated that pesticides were not detected and that the petroleum product sample was identified as motor oil with a TRPH concentration of 160,000 mg/L. Analysis of the production well groundwater sample revealed no detections of VOCs or SVOCs.

Surface Water Quality

Surface water quality is assessed with respect to analytical data obtained from seven surface water samples collected from drainage ditches at the site (Figure 10). The northeast drainage ditch includes samples SW-01 to SW-03. The southeast drainage ditch includes samples SW-04 to SW-07.

- VOCs: Acetone was detected in SW-02 at 16 $\mu\text{g/L}$ and xylene was detected in SW-03 at 92 $\mu\text{g/L}$. These were the only VOCs detected during analysis of the surface water samples. Results are presented in Table 11.1.
- SVOCs: Seven SVOCs were detected at low concentrations in the surface water samples. The highest concentrations were detected in SW-02, with naphthalene at 170 $\mu\text{g/L}$ and 2-methylnaphthalene at 390 $\mu\text{g/L}$. Results are presented in Table 11.2.

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- TCL Pesticides: Results of the pesticide analysis of the surface water samples are as follows:
 - Individual pesticide concentrations in the northeastern drainage ditch are less than 29 $\mu\text{g/L}$ (DDD). The highest concentration of a pesticide detected in the northeast drainage ditch was DDT at 29 $\mu\text{g/L}$ in SW-03.
 - The southeast drainage ditch contained individual pesticide concentrations less than 11 $\mu\text{g/L}$, with the exception of SW-05, which contained a DDD concentration of 50D $\mu\text{g/L}$.

Table 11.3 presents the results of the pesticide analyses for surface water samples.

- Sevin and Malathion: Sevin was detected at concentrations ranging from nondetectable concentrations to 64 $\mu\text{g/L}$, while Malathion was only detected in SW-03 at 0.67 $\mu\text{g/L}$. Table 11.4 presents the results of the sevin and Malathion testing.
- Metals: Total metal results are presented in Table 11.5. Results of the total metal analyses showed the following:
 - Arsenic concentrations ranged from 2.1 to 4.0 $\mu\text{g/L}$ in the northeast drainage ditch and from 2.3 to 3.6 $\mu\text{g/L}$ in the southeast drainage ditch, with the exception of SW-05 which contained 616 $\mu\text{g/L}$;
 - Cadmium concentrations ranged from 9.3 to 65.2 $\mu\text{g/L}$ with location SW-05 containing the highest concentration;

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- Chromium was detected in three locations: SW-02, SW-03 and SW-05 at 5.1, 9.4 and 518 $\mu\text{g/L}$, respectively; and,
- Lead was detected at concentrations ranging from 2.2 to 10.4 $\mu\text{g/L}$ with the exception of SW-05 which contained 3220 $\mu\text{g/L}$.

General Parameters: pH, temperature and specific conductivity were collected in the field for the surface water samples. pH ranged from 2.8 in SW-05 to 7.0 at SW-07. Temperature was measured to be between 2°C and 7°C, and specific conductivity was measured to be between 600 to 1,150 μs , with the exception of the standing water sample SW-05 which was 11,240 μs .

Surface water samples were observed to be turbid during sampling, especially for sample SW-05, probably due to sediment entrainment. Therefore, constituent detection in the surface water samples may be potentially attributed to entrained sediment.

3.3.5 Air Quality

A high volume air sampling unit was utilized during the test pit task, as outlined in the Work Plan (McLaren/Hart, August 01, 1994). Figure 5 depicts the locations of sample AS-01, obtained downwind of test pit operations. The air sampling equipment was moved during test pitting activities due to a wind shift. U.S. EPA Method T04 was the test method utilized for air sampling during test pit completion. Section 2.1.4 presents the methodology followed for air sampling. The sample collected was analyzed by Quanterra for TCL pesticides. The only compound detected was alpha-BHC at a concentration of 1.4 ng/m^3 (Appendix B details the

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procedure for the determination of the concentration of the sample in the form of a calculation brief).

3.3.6 Underground Storage Tanks

Two 10,000 gallon underground storage tanks, depicted in Figure 11, were sampled for Total Recoverable Petroleum Hydrocarbons (TRPH).

Results were presented in the Data Submittal (McLaren/Hart, March 27, 1995) and indicate that the TRPH was identified as diesel at concentrations of 280,000 mg/L for UST-01 and 240,000 mg/L for UST-02. Prior to sample collection, the USTs were inventoried for depths, product thicknesses, *etc.* Measurements taken indicate a total depth of 11.2 ft-bgs for UST-01 and 13.0 ft-bgs for UST-02. Product thicknesses were measured utilizing a weighted tape measure and were found to be 2.95 ft for UST-01 and 6.1 ft for UST-02.

A third UST was designated for sampling in the Work Plan. However, the UST location was well surveyed and remnants of the proposed UST were not found. These findings may indicate that the third UST location may actually have been an above ground storage tank removed during previous operations.

3.4 QA/QC RESULTS

This section presents a discussion of the QA/QC results for the Work Plan sampling and analytical tasks. QA/QC samples included field blanks, trip blanks, and duplicate/replicate samples. In addition to these, three dioxin performance evaluation samples were submitted to Quanterra by U.S. EPA. A field laboratory/sampling methods audit was also performed by the project Quality Assurance Officer. Although several split samples of various site media were

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collected by U.S. EPA oversight contractors, these results were not submitted to PPG (prior to May 1, 1995) and are therefore not discussed in this document.

The following sections summarize the results of the above QA/QC activities.

3.4.1 Field and Trip Blanks

Field and trip blanks were collected during the Phase II Site Investigation as a measure of performing appropriate field equipment decontamination procedures and appropriate sample handling and shipping procedures, respectively. These analytical results were presented in detailed data tables (Tables 16.1 through 16.8) in the March 27, 1995 Data Submittal (McLaren/Hart, 1995) and discussed as follows:

- Field Blanks A total of six field blanks were collected during soil, sediment, and surface water sampling and two field blanks were collected during groundwater sampling events. One field blank was collected as part of additional soil sampling activities and will be addressed in a Data submittal to be submitted under another cover. Section 2.2 presents the methodologies followed for the collection of field blanks. Field blanks were analyzed by Quanterra for parameters included within respective soil and groundwater sampling events including the following:
 - TCL VOCs;
 - TCL SVOCs;
 - TCL Pesticides;
 - Dioxins;
 - Herbicides;
 - Sevin, Malathion, and Rotenone;

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- Select Metals; and,
- General Chemistry Parameters.

In general, the results of field blank analysis indicate no chemical constituents (with one exception) were detected above the analytical methods detection levels. Acetone was the only chemical detected (within several field blanks) at concentrations ranging from 7 ug/L to 510 ug/L. Since acetone was used in the equipment decontamination solvent rinse step, this observation was not determined to be unusual. Of notable interest was the absence of any of the site-related chemical constituents of interest within the field blanks. These observations indicate satisfactory field and laboratory decontamination procedures were followed.

- Trip Blanks Eight trip blanks accompanied sample shipment from the field to Quanterra. Trip blanks were laboratory prepared and accompanied the empty sample bottle shipment from Quanterra. Following respective media (both soil and groundwater) sample collection, one set of trip blanks was submitted during each sample shipment. Typically, these trip blanks accompanied the sample bottles designated for TCL VOC analysis. In the absence of TCL VOCs analysis for select sample media, trip blanks were not submitted for analysis. Respective trip blanks were analyzed by Quanterra for TCL VOCs. Analytical results indicate (with the exception of acetone [7 ug/L] on one occasion) no VOCs were detected within respective trip blanks. Since acetone is a common laboratory solvent and this observation only occurred once at low concentrations, it was not considered to be a major issue. General trip blank analytical results confirm that appropriate sample handling and shipping procedures were used.

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3.4.2 Duplicate/Replicate Sample Analysis

As a measure of the representativeness of respective sample media and the sample collection protocol, several duplicate/replicate samples were collected. Tables 15.1 through 15.7 of the Data Submittal (McLaren/Hart, March 27, 1995) present a detailed tabulation of the respective laboratory analytical results. The following paragraphs present a media by media summary of replicate/duplicate sample results.

- Field Screening: 50 duplicate samples were collected from respective soil borings and submitted for field screening analysis of total chlorinated compounds (using the Dextil kits) and select metals (using XRF methods). In general, good correlation between the duplicate/replicate samples indicate good analytical result reproducibility, confirming appropriate field and laboratory protocol were followed.
- Soil Samples: 12 duplicate/replicate samples were collected from soil boring and submitted for CLP analysis for the parameters listed in Section 2.1.1. These results indicated acceptable analytical reproducibility, confirming that satisfactory QA/QC protocols were followed, and good representativeness of site media was obtained.
- Test Pits: Two duplicate/replicate samples were collected from the test pits and submitted for CLP analysis for the parameters listed in Section 2.1.3. QA/QC results for the replicates/duplicates do not corroborate extremely well; this could potentially be a function of the gross heterogeneity of test pit materials being characterized or the high concentrations of constituents present in these samples. In support of this supposition, it was observed that most of the test pit samples had to be rerun as many as three (or even four) times, with several dilutions, demonstrating that these samples were significantly heterogenous.

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- Sediment Samples: Two sediment samples were submitted as duplicate/replicate samples for the analysis of CLP parameters listed in Section 2.1.5. These results indicated acceptable analytical reproducibility, confirming that satisfactory QA/QC protocols were followed, and good representativeness of site media was obtained.
- Surface Water Samples: Two surface water samples were submitted as duplicate/replicate samples for the analysis of CLP parameters listed in Section 2.1.6. These results indicated acceptable analytical reproducibility, confirming that satisfactory QA/QC protocols were followed, and good representativeness of site media was observed.
- Groundwater Samples: Two groundwater samples were submitted as duplicate/replicate samples for the analysis of CLP parameters listed in Section 2.1.11. These results indicated acceptable analytical reproducibility, confirming that satisfactory QA/QC protocols were followed, and good representativeness of site media was observed.

3.4.3 Dioxin Performance Evaluation Samples

Pursuant to U.S. EPA protocol, three soil samples were submitted to Quanterra for the analysis of dioxins using Method DFM101.1. These samples were submitted as performance evaluation samples to evaluate the laboratory protocol, accuracy, and precision for dioxin analysis. These results were tabulated and presented within the Data Submittal (McLaren/Hart, March 27, 1995). Since the original dioxin results were not revealed to McLaren/Hart, no determinations as to the performance of dioxin analysis has been presented in this report.

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3.4.4 Field Laboratory/Field Sampling Methodology Audit

As stipulated in the Work Plan, the project QA/QC officer, Ms. Diane Waldschmidt (of EDS), completed an audit of field laboratory and field sampling procedures on December 14, 1994. Appendix H presents a copy of the QA/QC audit report (EDS, December 18, 1994). No major deficiencies were identified during the audit process. Where deficiencies were recorded, the recommended corrective action was implemented immediately.

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4.0 DATA EVALUATION

This section identifies specific potential chemical constituents of interest (PCOIs) within the respective Pulverizing Services Site media based on U.S. EPA risk-based soil and tap-water concentrations. The methodologies and assumptions used to screen and identify the respective PCOIs within the site media are presented in detail. PCOIs which do not appear to be operation related are discussed further. Examples of these anomalous areas are explained within their respective subsections.

4.1 SOIL/FORMER DISPOSAL AREAS

U.S. EPA Region III Risk-Based Concentrations (U.S. EPA, 1995) were used to screen the constituents measured in site media samples. This approach was utilized so as to focus the subsequent risk assessment on those chemicals which constitute the majority of the site risks to human health. Use of these values for screening purposes is considered conservative (*i.e.*, health protective) as they are calculated using the latest U.S. EPA toxicity criteria and extremely conservative estimates of exposure. In addition, the RBCs calculated by Region III are consistent with recent national U.S. EPA guidance issued in December, 1994. In addition to using Region III RBCs for screening, NJDEP Soil Cleanup Criteria (NJDEPE, June 1994) was also considered for potential use as screening criteria. However, NJDEPE values were not utilized for screening purposes because they have not been accepted for general use. As Region III does not have a screening criteria for lead, the recent U.S. EPA OSWER guidance (U.S. EPA, 1994 Directive 9355.4-12) was used.

For this site, the Region III Industrial RBCs were compared to the concentrations measured during the investigation. The maximum concentrations of each chemical was compared to the Region III RBC value; those in exceedance of the Region III value were retained here as

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potential chemical of interest (PCOI). Those chemicals which did not exceed Region III criteria were not retained further.

For areas adjacent to the site that are zoned as industrial/commercial, the industrial RBCs were used to develop PCOIs. For residential areas adjacent to the site, the residential RBCs were used. Comparison of site data with the above guidance was made for the sole purpose of screening PCOIs to be retained for further evaluation in the forthcoming risk assessment. The use of these screening RBC values should not be interpreted to mean that PPG views these RBC values as potential remediation goals which are applicable for this site.

Tables 2.1 through 2.7 present a summary of the chemical constituents detected in site soils. These constituents for the respective site soil/sediment/test pit media detected are summarized on Table 13. Table 13 also presents the PCOIs identified based on this screening procedure. The following paragraphs summarize the evaluation of natural soil and former disposal area PCOIs at the site.

4.1.1 Surface/Subsurface Soils PCOIs

Based on the above-stated criteria, the following nine PCOIs for site surface and subsurface soils (including former disposal areas) were identified:

- Lead;
- Alpha-BHC;
- Dieldrin;
- DDT;
- DDD;
- DDE;

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- Sevin;
- Hexachlorobenzene; and,
- Benzo[a]pyrene.

Distribution of PCOIs in Surface/Subsurface Soils

Two types of areas occur on site which should be addressed differently when completing the risk assessment. The two variations in site media are natural surface/subsurface soil and anthropogenic fill materials (former disposal areas) such as those materials identified in nonvegetated areas. Fill type material found in nonvegetated areas appears to be more indicative of former disposal practices rather than constituents that were naturally transported via physical mechanism to their observed locations. These two variances in media should be addressed separately in the risk assessment, since utilizing test pit and former disposal area data may provide a disproportionate increase in risk for the remainder of the site and may lead to unnecessary remediation activities for those portions of the site which do not present adverse impact to human health.

Natural Surface/Subsurface Soil

A threshold of 17 mg/Kg was used as a screening concentration for DDT and metabolites (DDD and DDE). 17 mg/kg was utilized as this concentration represents the RBC for DDT. Utilizing 17 mg/kg is conservative value since DDD and DDE are also PCOIs and can not be segregated from DDT using the field screening methods. The field screening methods measure total chlorinated compounds and actually detect the presence of all three compounds. A more representative statistically valid screening value may be determined in the future to include the increased mass of chlorine contributed by the DDT metabolite compounds.

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Figure 12 presents a distribution of the total chlorinated compounds in site surficial soils (based on field screening). Figures 13 and 14 indicate the subsurface distribution of these compounds. The following observations were made with respect to these figures:

- Areas of the site above 17 mg/Kg total chlorinated compound concentration in surface soils is restricted primarily to Area A;
- Subsurface soil (between depths of 0.5 and 4 feet) total chlorinated compound concentrations in excess of 17 mg/Kg are primarily restricted to Area A;
- DDT and metabolites appear to be in decreasing concentrations with depth;
- Some off-site surface migration of compounds is apparent in the eastern area of the site. DDT and metabolites were surficially delineated off site in a localized area approximately 150 feet from area A (proximity of SB-011B);
- DDT and metabolites appear to be distributed within subsurface materials towards the western boundary of the site. This is possibly a result of this area reportedly being used to back fill plant debris following a fire in 1964; and,
- The distribution of the Inorganic and Organic PCOIs is consistent with the distribution of the total chlorinated compounds (Figure 12) and DDT and metabolite compounds (Figures 15). An example of this distribution is presented in Figure 16. Figure 16 shows the surficial soil distribution of dieldrin. The distribution of dieldrin seems to visually correlate with the distribution of total chlorinated compounds (Figure 12 field screening) and DDT and metabolites (Figure 15). The inorganic and organic distribution to other

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PCOIs are based on discrete samples and are consistent with the zones of interest shown on Figures 12 through 16.

Figure 15 presents the CLP DDT and metabolite distribution throughout the site. A visual comparison of the field screening surface distribution in Figure 12 and Figure 15, indicates that the field screening concentrations correlate well with the CLP surface distributions of DDT and metabolites. The distribution of PCOIs in site surface/subsurface materials is consistent with the previously reported distribution (PCR, April, 1993). In addition, chemical constituents detected within natural vegetated surface and subsurface soil in Areas A, and B are probably more attributable to a natural transport mechanism versus direct disposal of materials in these particular areas.

Distribution of PCOIs in Former Disposal Areas

Former Disposal Area soil results are evaluated differently than site surface and subsurface soils data because certain soil borings and test pit excavations were completed in areas used as former disposal areas and encountered materials which are likely more representative of waste materials. Because of the waste material type properties, these areas may be handled differently in a remediation scenario. Tables 3.1 through 3.9 present a summary of soil concentrations detected within the former disposal areas.

Constituents detected within soil borings completed in former disposal areas (anthropogenic fill materials), such as those identified in nonvegetated areas, appeared to be more indicative of former disposal practices rather than constituents that were naturally transported *via* physical mechanisms to their observed locations. Soil borings at SB-007, SB-011, SB-014, SB-035, SB-060, SB-063, and SB-074 were completed in nonvegetated areas. Therefore, the evaluation of data from these soil borings was completed in conjunction with former disposal area results.

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Figure 12 includes the distribution of total chlorinated compounds above 17 mg/Kg. As depicted, these constituents are present within the limits of the former disposal trenches within Area A. The following observations and results were developed based on a review of PCOI concentrations within the former disposal areas:

- As observed within the TP-07 samples, constituent concentrations (such as DDT) in waste materials (25,000 $\mu\text{g/Kg}$) are higher than the concentrations within natural subsurface materials (30J $\mu\text{g/Kg}$) underlying the waste materials. This distribution of constituents is indicative of the extremely low mobility of PCOIs in site soils;
- The concentration of DDT in test pit TP-07A (25,000 $\mu\text{g/Kg}$) within the former disposal trench is higher than the DDT concentrations within adjacent non-waste areas (TP-07B - 95J $\mu\text{g/Kg}$);
- Sevin was determined to be a PCOI based on two discrete subsurface samples (TP-06B/5-6 and TP-08A/1-2). These locations coincide with elevated chlorinated pesticide concentrations and will be addressed during remedial activities;
- These results indicate that chemical composition of former disposal area materials is different from natural adjacent and subsurface materials. The data indicates that concentrations of PCOIs appear to be decreasing, both laterally, as well as vertically;
- Three localized areas within Area B indicate total chlorinated compounds in surface soils in excess of 17 mg/Kg. Two of these areas are coincident with

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nonvegetated anomalous fill areas that were possibly used for surface placement of waste materials. These localized areas appear to be inconsistent with the surrounding surficial soil; and,

- The chemicals present within the former disposal areas and their distributions are similar to those chemicals present within the former disposal trench samples. This validates the grouping for risk assessment purposes of the former disposal trench materials and the nonvegetated areas, both of which were probably derived from former waste disposal and/or handling practices.

Certain PAH compounds (primarily benzo[b]fluoranthene and benzo[a]pyrene) exceed industrial RBCs only at one site location (SB-066 - adjacent to railroad tracks). These compounds are not related to historical use at the site, and are probably attributable to the wood treatment in the railroad tracks. Therefore, these PCOI concentrations are considered anomalous and will be addressed in conjunction with other PCOIs.

4.2 RESIDENTIAL AREA SOIL PCOIs

Because detectable levels of chlorinated organic compounds were detected at the site boundary, samples were collected from an off site residential area adjacent to the site. Samples collected from this area were screened using U.S. EPA Region III RBCs for residential land use. As discussed in Section 2.1.1, five soil borings (designated SB-036B, SB-034B, SB-088, SB-089, and SB-090) were completed within the residential property adjacent to the site (Figure 4). Tables 2.1 through 2.7 summarize these results. The compounds detected within the off site samples are summarized with the residential RBCs on Table 14. Based on this evaluation, the residential area soil PCOIs are identified as:

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- Dieldrin; and,
- DDT.

Concentrations of these chemical compounds slightly above residential RBCs were only identified at two soil boring locations (*i.e.*, SB-093 and SB-34B).

Distribution of PCOIs in Adjacent Residential Area Soils

The following observations were made with respect to the distribution of PCOIs within surface/subsurface soils at the adjacent residential area (west of Area A):

- Only two sample locations indicated the presence of PCOIs; and,
- These PCOIs appeared to attenuate within a few feet of the western property boundary of Area A.

4.3 SEDIMENT PCOIs

Tables 5.1 through 5.9 presents a summary of detected constituents in respective sediment samples (*i.e.*, in drainage ditch sediments, Building 5 Trench sediments, and storm sewer sediments). Table 13 includes the industrial RBC for the chemicals detected in sediment samples. The potential for exposure to PCOIs in sediments was judged to be similar to exposure to surface soils. Therefore, sediment data was compared to the RBCs.

Four different sediments were sampled; northwest and southern drainage ditch sediments, storm sewer sediments and a trench 5 sediment sample. Based on the U.S. EPA RBC values, the following PCOIs within site sediments were determined:

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Northwest Drainage Ditch Sediment Samples

- DDD; and,
- DDT.

Southern Drainage Ditch Sediment Samples

- Dieldrin.

Building 5 Trench

- Lead;
- Dieldrin;
- DDT;
- Benzo(a)anthracene;
- Benzo(b)fluoranthene;
- Benzo(a)pyrene; and,
- PCNB.

Storm Sewer

No storm sewer sediment chemical concentrations were detected above the industrial RBCs listed in Table 13.

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Distribution of PCOIs in Site Sediments

PCOIs are identified within drainage ditch sediments from Sample SED-02 and SED-03 (northwest drainage ditch adjacent to Area A and C) and SED-05, SED-06, and SED-07 (southern drainage ditch adjacent to Areas B). The samples (SED-03 and SED-07) immediately adjacent to the outfalls of the surface runoff drainage and discharge from Area A demonstrate the highest concentrations of PCOIs. These concentrations appear to attenuate in a downstream direction. Downstream sediment samples adjacent to the northern drainage discharge of the site (SED-01) and southern drainage area (SED-04) do not indicate any PCOIs which exceed RBCs. Therefore, it does not appear that sediments containing site-related PCOIs are leaving the site.

The sediment sample within the Building 5 Trench contains PCOIs (Tables 5.3, 5.4, and 5.7). This trench eventually drains into the storm sewer system and discharges to the drainage ditch adjacent to Area B. SED-07 sample reflects a chemical suite similar to that of Building 5 Trench. PCOI concentrations and distribution within sediments are consistent with those reported during previous investigative activities (PCR, April 1993, and PCR, July 1993).

4.4 GROUNDWATER/SURFACE WATER PCOIs

Groundwater PCOIs were determined by comparing site media concentrations to drinking water maximum contaminant level (MCL) standards (U.S. EPA, December 1993). In the absence of MCLs U.S. EPA Region III risk based concentrations (RBCs) tap-water concentrations (TWC) screening values (U.S. EPA, January 1995) were used.

Comparisons to the above criteria are made solely for screening purposes and should not be interpreted to mean that PPG views these criteria as potentially applicable remediation goals for this site. If the maximum groundwater water chemical concentrations exceeded the MCLs or the

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TWCs then the chemical was considered a PCOI for groundwater. Table 15 presents a summary of the PCOIs within groundwater based on the above screening criteria.

Groundwater

Tables 11.1 through 11.6 present the summary results of groundwater monitoring. The detected compounds were then compared with the MCLs and the TWCs on Table 14. Based on the screening levels stipulated therein, PCOIs for groundwater are identified as follows:

- Arsenic;
- Cadmium;
- Lead;
- Benzene;
- Carbon tetrachloride
- Tetrachloroethene;
- alpha BHC;
- beta BHC;
- delta BHC;
- Lindane (gamma BHC); and,
- Dieldrin.

Metal PCOIs determination was based only on the evaluation of dissolved metal concentrations observed within respective groundwater samples. Low pH groundwater within monitoring well MW-02 attributed to the screening and identification of several of these PCOIs. It is likely that the low pH (approximately 1 s.u.) increased the solubility and mobility of several naturally occurring metal and/or other constituents observed at this location. Historical aerial photographs reviewed indicated that the parking lot area above and immediately adjacent to MW-02 was used

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as a sulfur storage area. The reaction of inorganic sulfur with infiltrating precipitation possibly forms a low pH weak sulfuric acid solution. Behavior of metal ions in groundwater is very pH dependent. Low pH results in increased metal mobility, therefore increasing the dissolved metal concentrations within groundwater at the MW-02 location.

Distribution of PCOIs in Groundwater

The following observations were made with respect to PCOIs within site groundwater:

- PCOIs distribution were consistent with soils distribution. Groundwater in monitoring wells located within Area A appeared to have the highest PCOI concentrations (MW-02, MW-05, and MW-07);
- Groundwater with the highest concentrations of site-related PCOIs appear in the immediate vicinity of the former disposal trench (at the MW-05 and MW-07 well locations);
- Area C (MW-08) does not contain organic PCOIs above screening levels. Correspondingly, this area is relatively unimpacted by site-related constituents; and,
- Area B (MW-10) did not contain organic PCOIs above limits of detection, with the exception of two VOCs (carbon tetrachloride [10 $\mu\text{g/L}$] and tetrachloroethene, [25 $\mu\text{g/L}$]) indicating that Area B groundwater is unimpacted by past site operations.

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- Monitoring wells hydraulically upgradient of the site (MW-01 and MW-03 [to a lesser extent]) contain trace quantities of PCOIs and can be designated as background monitoring wells; and,
- Site-related PCOIs were detected within groundwater along the western property boundary of the site.

The occurrence and distribution of PCOIs within groundwater are similar to those detected during the Phase I Site Investigation (PCR, April 1993). In addition, the occurrence and distribution of PCOIs in groundwater are similar to the distribution of total chlorinated compounds in soils in Area A (Figures 12 through 15). With the local horizontal permeability, soil type (silt and clay content) and the low mobility of PCOIs, in conjunction with natural attenuation mechanisms (*i.e.*, dispersion, adsorption, and biological degradation), PCOIs are not expected to migrate to any significant extent in the shallow groundwater. Sample analysis of the deep sand and gravel unit indicates that PCOIs have not migrated to this unit.

Surface Water PCOIs

Table 11.1 through 11.6 summarized chemical constituent concentrations detected in surface water samples. The concentrations detected in excess of regulatory limits (presented in Table 11.1 to 11.6) are attributable to entrained sediment within the surface water flow. As discussed in Section 2.1.9, surface water samples were slightly turbid. Since the site related constituents are relatively immobile and adsorb to fine particles and the necessary sampling protocol did not require filtering, it is believed that entrained sediment may give a false representation of the surface water quality. SW-05, for example, was extremely turbid, due to the intermittent standing water location, and demonstrated correspondingly elevated metal and pesticide concentrations. The necessary sampling technique for SW-05 entrained the sediment in the

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sample and hence the analysis would represent sediment concentrations. In regards to this, the presence of PCOIs were not seen in the downstream sediment samples (SED-01 and SED-04). Based on these observations, PCOIs were not developed and presented for surface water.

4.5 AIR PCOIs

Chemical constituents in air are considered PCOIs if their concentrations exceed the concentrations stipulated in Region III RBCs (U.S. EPA, January 1995) for ambient air. Only one compound, alpha-BHC, was observed to demonstrate concentrations (1.4 ng/m³) above the ambient air RBC (0.9 ng/m³). However, this sample represents construction/remedial activities and is not representative of everyday/normal conditions and therefore should not be considered a PCOI in air. In addition, this chemical is a PCOI in surface soils, and as a consequence, it will be evaluated in the subsequent HRA for potential exposure during construction/remedial activities.

5.0 SUMMARY AND CONCLUSIONS

5.1 SURFACE/SUBSURFACE SOILS CHARACTERIZATION

Pursuant to the Phase II Site Investigation Work Plan, surface/subsurface soil characterization was conducted on a site-wide basis within Areas A, B, and C (Figure 2). Surface and subsurface soil samples were collected at various locations within the Pulverizing Services site as well as at several off site locations, as depicted in Figure 4. Investigative activities conducted within these areas are as summarized below:

- Area A - Surface/Subsurface soil and Test Pit sampling;
- Area B - Surface/Subsurface soil sampling and Test Pit Sampling; and,
- Area C - Surface/Subsurface soil.

The primary objective of the investigative activities within these respective areas was to determine the presence of concentrations and potential extent of PCOIs (from former plant operations) in these areas for use in the forthcoming risk assessment and focussed feasibility study.

Soil physical and lithologic characteristics verify previous site subsurface understanding. These discussions are presented in detail in Section 3.2. In general, surface soils at the site consist of either fill materials or natural silty/clayey sand. These surficial materials are underlain by a continuous clay unit approximately 110 feet thick. Fill materials comprise of sandy/gravelly or powdery material in several localized areas and in one area identified as former disposal trenches. These areas are typically nonvegetated and are clearly discernable. The localized nonvegetated areas contain fill materials to a maximum depth of approximately two feet. In the former disposal trench area, the fill materials extended to approximately 9 ft-bgs. In all

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instances, fill materials were observed to be underlain by natural subsurface materials. The extent of the localized nonvegetated fill areas and the former disposal trench are as indicated in Figure 2.

Soil quality investigations evaluated concentrations of both inorganic and organic constituents in surface and subsurface natural soils. With the exception of arsenic and lead, soil concentrations appear to be consistent with natural soil concentrations reported in literature (Shacklette, 1977, and Lindsey, 1979). In addition, arsenic was not determined to be a PCOI for soil. A Behrens-Fisher t-Test should be conducted on those inorganic PCOIs to determine if they statistically exceed background concentrations.

Surface soil organic PCOIs detected were primarily pesticides (*i.e.*, DDT and metabolites [DDD and DDE], and dieldrin). Significant attenuation of these compounds was observed between surficial and subsurface materials. Figure 12 presents the approximate surface distribution of total chlorinated compounds at the site, whereas Figures 13 and 14 present the typical subsurface distribution of total chlorinated compounds at the site. As depicted, PCOIs at the site are primarily limited to Area A (both surface and subsurface), and to a lesser extent Area B. Area C surface and subsurface soil appear to be unimpacted by site-related PCOIs. Off-site areas east and west of the site indicate the presence of PCOIs (using industrial and residential screening criteria) in surficial materials in a localized delineated area 150 ft (east of Area A) and a localized delineated area 25 ft (west of Area A).

The localized nonvegetated fill areas and the former disposal trench areas were determined to have the highest concentrations of several site-related PCOIs, possibly as a result of former material/disposal handling practices at the site. These materials were also determined to demonstrate a very similar distribution of PCOIs. PCOIs identified were primarily pesticides,

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including DDT and metabolites (DDD and DDE), dieldrin, BHC compounds, and hexachlorobenzene. Lead was the only inorganic PCOI detected above screening levels.

Elevated PAH concentrations were measured at one soil boring location, however, it is believed that the occurrence of PAHs is attributable to the presence of chemicals within the adjacent treated wood railroad tie or railroad ballast.

In general, the highest concentrations of PCOIs were detected in the former disposal areas. The PCOI CLP pesticide and lead concentrations correlated well with the field screening results as evidenced by the surface soil distributions of DDT and dieldrin (Figures 15 and 16 respectively).

5.2 SEDIMENT CHARACTERIZATION

Sediment samples were collected from the drainage ditches draining site Areas A, B, and C, the Building 5 Trench, and the storm sewer (as depicted in Figure 6). Sediment quality results of three sediment types are presented in Tables 5.1 through 5.9. The area A northwest drainage ditch and the Area B southern drainage ditches appear to collect sediment from runoff of these Areas. The Building 5 Trench sample (which was also close to former site operations) indicated the highest concentrations of site-related PCOIs. PCOIs in drainage ditch sediments were identified to be arsenic, dieldrin, DDT, and DDD. The Building 5 Trench had the most PCOIs at the highest concentrations, including lead, hexachlorobenzene, and PCNB. Sediment quality appear to indicate that samples located proximal to the discharge outfalls that drain Area A source areas contain the highest concentrations of site-related PCOIs. Sediment samples proximal to site boundaries did not demonstrate site-related PCOIs. Therefore, it does not appear that sediments containing site-related PCOIs have migrated off site.

5.3 GROUNDWATER CHARACTERIZATION

5.3.1 Physical Characteristics

At the Pulverizing Services site, groundwater occurs within the following subsurface zones:

- Shallow unconfined sand and silt unit (at a potentiometric surface elevation between approximately 50 and 60 ft-msl [0-20 ft-bgs]); and,
- Deep confined, artesian, sand and gravel unit (at an approximate elevation of -44 ft-msl [9-128 ft-bgs]).

Section 3.2.2 presents a detailed description and discussion of the nature and occurrence of these two zones. In general, the unconfined surficial sand aquifer is continuous and saturated across the site. Where waste materials within the isolated former disposal trenches are present, the shallow potentiometric surface saturates the lower two feet of waste materials and appears slightly mounded, possibly due to the higher conductivity of trench materials.

Recharge of groundwater to the site occurs through two mechanisms, infiltration of incident precipitation and upgradient recharge to the sand unit. Wherever site areas appear paved, the vertical infiltration will be limited and upgradient recharge will predominate.

Two separate flow paths seem to originate near the former disposal trenches. One flow path is a northwestern flow direction (with an average hydraulic gradient of 0.02 ft/ft) and the other is a southwestern flow direction (with an average hydraulic gradient of 0.005 ft/ft). Vertical hydraulic gradients between the unconfined sand unit and the deep confined artesian sand and

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gravel unit appear to be on the order of 0.3 ft/ft. Figure 9 presents the shallow groundwater potentiometric flow contour maps.

The seepage velocities were calculated to be:

Horizontal Shallow Sand Aquifer

- Northwesterly and westerly flow direction = 0.06 ft/day; and,
- Southwesterly flow direction = 0.014 ft/day.

Vertical Shallow sand aquifer to deep sand and gravel aquifer (using the hydraulic conductivity value for the clay unit as 9.1×10^{-9} cm/sec).

- 1.9×10^{-9} ft/day.

5.3.2 Groundwater Quality Characteristics

Section 3.3.2 and 4.3 presents a comprehensive discussion on the distribution of the organic and inorganic constituents at the site; analytical data are presented in Tables 11.1 through 11.6. The shallow unconfined sand groundwater aquifer appears to be the only unit of the two that contains site-related PCOIs. Notable findings within the shallow groundwater aquifer were as follows:

- The PCOIs are primarily pesticide-related compounds (including BHC compounds, and dieldrin). Metals (arsenic and lead) and Organics (benzene and tetrachloroethene) were also identified as PCOIs;

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- PCOIs in groundwater appear to be primarily limited to Area A. No migration appears to have occurred within Areas B and C;
- Some potential for offsite migration appears to exist at the western property boundary. However, based on the extremely low groundwater velocities in that direction (*i.e.*, 0.06 ft/day [or approximately 22 ft/year]), this migration is not expected to be significant; and,
- Due to the extremely low vertical hydraulic conductivities (*i.e.*, 0.014 ft/day [or approximately 5 ft/year]), vertical groundwater migration from source areas is expected to be minimal. This conclusion is further supported by the fact that no site related constituents were detected in the deep sand and gravel aquifer (drinking water aquifer).

In conclusion, groundwater PCOIs have been determined on site. The probable source seems to be the former disposal areas in Area A. The potential use of solvents as carriers of site related constituents does not appear to be warranted based on this and previous investigations. Because no cosolvents were detected during this and previous investigations it appears that site related pesticide do not have increased solubility. With the local horizontal permeability, soil type (silt and clay content) and the low mobility of PCOIs in conjunction with natural attenuation mechanisms (*i.e.*, dispersion and biological degradation), PCOIs are not expected to migrate to any significant extent in the shallow groundwater. Sample analysis of the deep sand and gravel unit indicates that PCOIs have not migrated to this unit.

5.4 SURFACE WATER

Surface water quality was evaluated at the seven surface water sample locations presented in Figure 10. Analytical results are summarized on Table 11.1 through 11.6. Several constituents were detected within surface water samples. However, since the site related constituents are relatively immobile and adsorb to fine soil particles, it is believed that entrained sediment may give a false representation of the surface water quality. Therefore, surface water analytical results were not included in the development of PCOIs.

5.5 NATURE OF PCOIs

PCOIs identified at the site appear to be primarily pesticide related compounds related to dry-handling of pesticide materials. Lead and arsenic concentrations at the site and previous site-related information (Section 1.2.1) indicate that lead arsenate and calcium arsenate were processed during former operations. Lead arsenate and calcium arsenate are classified as **inorganic insecticides** and demonstrate extremely low potential for solubility. However, depending on pH levels, the inorganics may increasingly dissolve in aqueous solution.

DDT and metabolites (DDD and DDE) are organochlorine (**halogenated** and non-polar) **organic** pesticides (mostly used as insecticides) that are relatively insoluble. Dieldrin and BHCs are halogenated cyclic aliphatic insecticides and rodenticides. PCNB is a nitrated aromatic compound primarily used as a fungicide. This group of pesticides are the most frequently occurring PCOIs at the site and are known to be primarily water insoluble pesticides.

Since the Pulverizing Services Site was not used for the manufacture of any pesticide compounds, none of the chemicals that typically are used in the manufacturing process (*e.g.*, chlorinated benzenes) have a history at the site as evidenced by the fact that none are considered PCOIs at

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the site. The pesticide compounds have a very high solubility in these "carrier" chemicals or solvents, none of which were detected in any significant concentrations within site media (including the test pits within the former disposal area). Therefore, in the absence of these carrier chemicals, the potential mobility of pesticide constituents is greatly reduced. In addition, the occurrence and distribution of PCOIs in groundwater are similar to the distribution of total chlorinated compounds in soils in Area A (Figures 12 through 15). With the local horizontal permeability, soil type (silt and clay content) and the low mobility of PCOIs, in conjunction with natural attenuation mechanisms (*i.e.*, dispersion, adsorption, and biological degradation), PCOIs are not expected to migrate to any significant extent in the shallow groundwater. The mobility and permeability of the constituents and surrounding soils could be additionally enhanced through the proper soil treatment techniques. The distribution of the pesticide chemicals in soils and groundwater, and a review of historical site operating conditions corroborate that the presence of pesticide chemicals at the site is not due to any wet manufacturing process, rather, possibly a result of storage, handling, and waste management practices.

5.6 RECOMMENDATIONS

The tasks completed during the Phase II Site Investigation fulfilled the project objectives stipulated in the Work Plan (McLaren/Hart, August 01, 1993). As a result of this investigation, several recommendations were identified for additional activities at the Site.

- Section 4.0 presents a very conservative approach to identify the PCOIs within site media. Subsequent evaluation of PCOIs during the data evaluation phase of the Risk Assessment should include the development of site-specific preliminary remediation goals (PRGs) (with site-specific input parameters) rather than use generic published RBCs (U.S. EPA, February 9, 1995).

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McLaren/Hart believes that the following documents provide the most accurate models and methods for determining these site specific goals:

- U.S. Environmental Protection Agency. [USEPA]. (1991b). *User's Guide for the fugitive Dust Model (FDM) revised, User Instructions*. Office of Air Quality Planning and Standards. Seattle, WA. January.; and;
- U.S. Environmental Protection Agency. [USEPA] EPA 540/R-94/106. (1994). *Technical Background Document for Soil Screening Guidance review draft*. Office of Solid Waste and Emergency Response. Washington, D.C. November.;
- While further evaluating site environmental data to identify PCOIs, data sets should be statistically evaluated using the range of concentrations detected at the site, their arithmetic mean and standard deviation values, and the 95th percentile upper confidence limit (UCL) of the arithmetic mean;
- The scenario of ingestion of surficial soils contributing to the human health risk at the site should only be used for soils 0 to 0.5 feet deep.
- The industrial land use scenario should be utilized in assessing PRGs and cleanup criteria because of the following: the site is currently zoned industrial; many adjacent off-site properties are zoned industrial (Figure 3) and the land has been industrial for the past sixty years;

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- As a result of the Risk assessment, site- and media-specific preliminary remedial goals (PRGs) should be determined;
- A phased approach to dealing with groundwater should be developed to address the areas of interest (former disposal trench) which may have contributed to PCOIs in groundwater;
- Following development of the COIs and PRGs, soil volumes containing COIs above the PRGs within respective media can be calculated during the focused feasibility study process; and,
- The delineation of the nature and extent of PCOIs will support the progression of the risk-based Preliminary Remedial Goals and the Focused Feasibility Study.

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- McLaren/Hart, November 29, 1994, Letter Report titled Results of Field Screening Evaluation, submitted to U.S. EPA Region II on behalf of PPG Industries, Inc.
- McLaren/Hart, December 12, 1994, Letter to U.S. EPA Region II titled Amendment to Scope of Work, submitted on behalf of PPG Industries, Inc.
- McLaren/Hart, January 13, 1995, Letter to U.S. EPA Region II titled Scope of Work: Former Site Production Well Sampling , submitted on behalf of PPG Industries, Inc.
- McLaren/Hart, February 2, 1995, Letter to U.S. EPA Region II titles Scope of Work: Slug Testing , submitted on behalf of PPG Industries, Inc.
- McLaren/Hart, February 8, 1995, Letter to U.S. EPA Region II titled Production Well Observations and Additional Recommendations submitted on behalf of PPG Industries, Inc.

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- McLaren/Hart, March 6, 1995, Letter to U. S. EPA Region II titled Additional Soil Delineation Activities , submitted on behalf of PPG Industries, Inc.
- McLaren/Hart, January 10, 1995, Monthly Progress Report, Number 54, submitted to U.S. EPA Region II on behalf of PPG Industries, Inc.
- McLaren/Hart, March 8, 1995, Monthly Progress Report Number 56, submitted to U.S. EPA Region II on behalf of PPG Industries, Inc.
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- U.S. EPA, November 1994, Contaminants and Remedial Options at Pesticide Site, Office of Research Development, EPA/600/R-94/202.
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U.S. EPA, January 31, 1995, Region III Risk-Based Concentrations, issued by Roy Smith on
January 31, 1995.

TABLE 1

SUMMARY OF PHASE II SITE INVESTIGATION
ANALYTICAL METHODS

Media	ANALYTICAL METHODS							
	Field Screening	VOCs	SVOCs	Pesticides	Herbicides	Metals (As,Cd,Cr,Pb)	Dioxins	General Analytical
SURFACE AND SUBSURFACE SOILS	Dexsil	EPA 8240	EPA 8270	EPA 8080/8318/8141	n/a	EPA 8010	DFIMO1.1	EPA 8270/450.1/351.3
	XRF (As,Cd,Cr,Pb)							/350.2/365.2
TEST PIT	Dexsil	EPA 8240	EPA 8270	EPA 8080/8318/8141	EPA 8150/8318	EPA 8010	DFIMO1.1	EPA 351.3/350.2/365.2
	XRF (As,Cd,Cr,Pb)							
SEDIMENT	Dexsil	EPA 8240	EPA 8270	EPA 8080/8318/8141	n/a	EPA 8010	n/a	EPA SW846
	XRF (As,Cd,Cr,Pb)							
SURFACE WATER	pH, Temp., Spec Cond.	EPA 8240	EPA 8270	EPA 8080/8318/8141	EPA 8318	EPA 8010	n/a	pH, Temp., Spec Cond.
GROUNDWATER	pH, Temp., Spec Cond.	EPA 8240	EPA 8270	EPA 8080/8318/8141	n/a	EPA 8010	n/a	pH, Temp., Spec Cond.
PRODUCTION WELL								
Water	pH, Temp., Spec Cond.	EPA 8240	EPA 8270	EPA 8080/8318/8141	n/a	EPA 8010	n/a	pH, Temp., Spec Cond.
Petroleum Product	Dexsil	n/a	n/a	EPA 8080	n/a	n/a	n/a	EPA 8015
UST	Dexsil	n/a	n/a	n/a	n/a	n/a	n/a	EPA 8015
AIR	n/a	n/a	n/a	EPA 8080	n/a	n/a	n/a	n/a
CONCRETE	Dexsil	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes: 1) VOCs indicate Volatile Organic Compounds
2) SVOCs indicate Semi-Volatile Organic Compounds
3) n/a indicates media not analyzed for that method

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SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

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SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-010	10/26/94	0.5	686	(46)	<1	105	63
SB-010	12/07/94	1.0	0.5	(0.6) J	<1	73.4	14.8
SB-010	12/07/94	3.0	0.3	5.4 J	<1	73.4	7.5
SB-010	12/15/94	1.0	7.7	8	2.3	49.8	24.1
SB-011	10/27/94	0.5	232	17	<1	20	35
SB-011	12/07/94	1.0	6.7	8.1	<1	74.3	17.4
SB-011	12/07/94	3.0	1.9	4.9 J	<1	92.5	4.6
SB-011B	12/14/94	0.5	7.2	14.4	<1	61	78.9
SB-012	10/26/94	0.5	5.5	<1	<1	44	30
SB-012	12/07/94	0.5	190.6	12.5	1.6 J	72.8	56.8
SB-012	12/07/94	1.5	158.7	11.5	<1	30.5	122.8
SB-013	10/26/94	0.5	38.4	(25)	<1	48	146
SB-013	12/07/94	1.0	8.1	(44.4)	1.7 J	31	166.6
SB-013	12/12/94	2.5	0.3	5.2 J	<1	36.9	6.2
SB-014	10/26/94	0.5	17.8	14	<1	39	61
SB-014	12/07/94	1.0	1731	5.7 J	<1	33.2	51.4
SB-014	12/07/94	2.0	12.3	5.3 J	3.4	23.6	12.5
SB-014	12/15/94	1.0	123.1	10.6	(0.6) J	59.4	51.7
SB-015	10/26/94	0.5	1.8	<1	<1	34	34
SB-015	12/07/94	1.0	27.7	5.7 J	<1	34.9	56.4
SB-015	12/07/94	2.0	0.5	3.2 J	<1	14.9 J	16.3
SB-015	12/15/94	1.0	116.9	15.2	<1	19.4	100.3
SB-016	12/07/94	0.5	30.4	13.8	(0.02) J	77.1	49.2
SB-016	12/07/94	1.0	1.7	4.6 J	1 J	55.6	13.9
SB-016	12/07/94	2.5	2.2	2.3 J	<1	33.9	8.8
SB-017	10/26/94	0.5	7.6	---	---	---	---
SB-017	12/06/94	1.0	1.1	9.6	<1	65	16.7

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL FIELD SCRIN

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SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

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Pulverizing Services Site

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SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-017	12/06/94	2.5	0.9	1.4 J	3	45.7	20.9
SB-018	10/27/94	0.5	9.3	16	<1	55	110
SB-018	12/06/94	1.0	0.6	8.2	<1	24	9.3
SB-018	12/06/94	3.0	1.7	7.4 J	<1	48	6.7
SB-019	10/27/94	0.5	64.7	---	---	---	---
SB-019	12/06/94	1.0	0.7	6.1 J	<1	35.7	4.2
SB-019	12/06/94	2.5	1.9	8.5	1.7 J	35.9	18.2
SB-020	10/27/94	0.5	6.8	---	---	---	---
SB-020	12/06/94	1.0	0.9	10.8	3.7	65.6	10.4
SB-020	12/06/94	2.0	1.9	9.7	1 J	63.4	3.5 J
SB-021	12/05/94	0.5	0.5	14.2	1.8 J	54.4	38.7
SB-021	12/05/94	1.0	0.3	4.8 J	5.9	68.1	23.8
SB-021	12/05/94	3.0	0.3	10.1	<1	58.9	4.8
SB-021	12/15/94	0.5	0.4	19.8	1.1 J	43.5	30.7
SB-022	12/05/94	0.5	1.3	10.5	<1	73.7	34.8
SB-022	12/05/94	1.0	0.5	10.1	1.6 J	106.5	7.2
SB-022	12/05/94	3.0	0.2	4.4 J	2.4	56.4	10.9
SB-023	12/05/94	0.5	0.7	9.3	(0.2) J	6.5 J	39.4
SB-023	12/05/94	1.0	0.5	6.1 J	<1	49.8	11.7
SB-023	12/05/94	3.0	0.3	11.5	(0.8) J	83.8	9.3
SB-024	12/05/94	0.5	0.5	22.1	2.2	93.3	21.2
SB-024	12/05/94	1.0	0.4	64.6	<1	109.9	21.3
SB-024	12/05/94	3.0	0.4	36.6	(0.9) J	110.6	11.4
SB-024	12/15/94	0.5	0.1	6.8 J	<1	56.6	60.6
SB-025	12/05/94	0.5	2.4	8.4	<1	16.9	38.3
SB-025	12/05/94	1.0	0.8	22.1	(0.3) J	100.0	10.2
SB-025	12/05/94	3.0	0.9	40.3	2.7	48.1	24.4

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL FIELD SCRIN

302400

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-026	12/05/94	0.5	0.6	17.7	3.4	57.0	26.2
SB-026	12/05/94	1.0	0.7	38.3	<1	89.9	13.2
SB-026	12/05/94	3.0	0.6	23.5	<1	103.3	8.8
SB-027	12/05/94	0.0	1.1	16.0	4.0	37.6	48.0
SB-027	12/05/94	1.0	1.3	43.6	<1	107.9	24.2
SB-027	12/05/94	3.0	1.2	87.7	(0.2) J	103.3	16.0
SB-028	12/05/94	0.0	1.2	6.6 J	<1	54.0	20.9
SB-028	12/05/94	1.0	0.4	15.8	(0.3) J	75	1.6 J
SB-028	12/05/94	3.0	1.4	29.6	(0.7) J	91.1	2.0 J
SB-029	12/05/94	0.5	4.6	15.5	(0.2) J	65.7	59.4
SB-029	12/05/94	1.0	1.5	17.5	<1	96.5	4.1
SB-029	12/05/94	3.0	0.8	29.1	1.5 J	113.3	8.4
SB-030	12/06/94	0.5	1.5	2.6 J	1.6 J	27.8	22.2
SB-030	12/06/94	1.0	0.3	8.0	(0.2) J	52	28.4
SB-030	12/06/94	2.5	0.7	8.6	<1	46.5	9.7
SB-031	12/07/94	0.5	23.8	7.6 J	1.1 J	25.6	67.1
SB-031	12/07/94	1.0	2.1	8.4	<1	37	5.8
SB-031	12/07/94	2.0	2.5	7.7 J	3.9	85.4	(0.7) J
SB-031B	12/15/94	0.5	1.2	5.1 J	2	37.2	17.7
SB-032	12/07/94	0.5	1.8	9.8 J	<1	32.4	36.1
SB-032	12/07/94	1.0	1.3	5.8 J	<1	63.6	33.6
SB-032	12/07/94	1.5	0.3	3.9 J	3.3	95.5	13.7
SB-033	12/07/94	0.5	196.4	10.4	3.8	76.7	18.8
SB-033	12/07/94	1.0	8.8	10.4	4.7	56	55.5
SB-033	12/07/94	2.0	<0.2	9.4	<1	44.5	9.6
SB-033B	12/16/94	0.5	150.1	8.8	<1	33	35.2
SB-034	12/07/94	0.5	2.2	8	1.6 J	73.6	50.3

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL FIELD SCRIN

302401

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-034	12/07/94	1.0	4.0	13.5	<1	122.4	28.5
SB-034	12/07/94	1.5	311	7.2	1.1 J	31.6	24.9
SB-034	12/15/94	1.0	24.4	10.4	<1	48.9	30.7
SB-034B	12/15/94	0.5	2.7	16.3	<1	48.7	75.0
SB-034B	12/20/94	0.5	43.9	8.9	<1	36.1	72.2
SB-035	12/07/94	0.5	646	15.0	6.3	96.5	118.7
SB-035	12/07/94	1.0	298	21.7	(0.9) J	94.9	105
SB-035	12/07/94	3.0	2.6	1.8 J	(0.3) J	40.7	13.9
SB-035	12/15/94	0.5	144.2	9.3	1.1 J	57.8	45.8
SB-035	12/19/94	3.0	1.7	<1	<1	35.4	20.2
SB-036	12/07/94	0.5	127.6	41.7	2.1	55	598.4
SB-036	12/07/94	1.0	1	9.5	<1	46.1	30
SB-036	12/07/94	2.5	0.5	9.9	1.8 J	22.4	34.5
SB-036	12/15/94	0.5	139.7	58.7	7.4	208.2	643.1
SB-036B	12/15/94	0.5	1.2	11.6	2.3	73.4	22.6
SB-036B	12/15/94	1.0	0.9	11.3	(0.1) J	21	38.9
SB-036B	12/15/94	2.0	0.7	4.0 J	<1	39.2	19.2
SB-037	12/07/94	0.5	6.2	13.8	(0.4) J	59.4	198.6
SB-037	12/07/94	1.0	0.9	<1	<1	90.2	21.4
SB-037	12/07/94	2.0	1.4	2 J	<1	27.9	12.4
SB-037	12/15/94	1.0	0.3	12.6	<1	50	13.7
SB-038	12/07/94	0.5	0.7	3.9 J	(0.4) J	118.1	18.9
SB-038	12/07/94	1.0	2	5.5 J	<1	36.4	14.2
SB-038	12/07/94	2.5	0.8	3.2 J	1.0 J	74.4	10.4
SB-039	12/07/94	1.0	1.3	2.9 J	(0.8)	51.1	11.3
SB-039	12/07/94	2.5	1.5	1.5 J	<1	83.8	15.7
SB-039	12/12/94	0.5	101.4	3.8 J	<1	77.8	29.3

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL FIELD SCRIN

302402

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-040	12/07/94	0.5	19.4	1.4 J	2.2	72.2	15.8
SB-040	12/07/94	1.0	5.1	4.8 J	<1	29.3	22.2
SB-040	12/07/94	3.0	1.4	4.6 J	(0.7) J	54.3	14.4
SB-040	12/15/94	0.5	29.7	6.5 J	8.2	63	145.3
SB-041	12/07/94	0.5	12.5	9.3	<1	<1	<1
SB-041	12/07/94	1.0	0.5	8.3	<1	17.1	15.2
SB-041	12/07/94	3.0	0.6	2.6 J	<1	44.9	14.4
SB-042	12/07/94	0.5	624	12.6	1.2 J	292.3	90
SB-042	12/07/94	1.0	3.1	8.7	<1	17.8	34.6
SB-042	12/07/94	3.0	0.4	2.3 J	<1	59.2	26.7
SB-042B	12/17/94	0.5	433	27 J	1.0 J	411.4	258
SB-043	12/07/94	0.5	176.2	12.2	<1	84.8	32.7
SB-043	12/07/94	1.0	1.1	6.3 J	<1	35.5	12.4
SB-043	12/07/94	2.5	0.5	8.3	<1	28.3	<1
SB-044	12/07/94	0.5	4.5	10.4	15.4	94.8	276.7
SB-044	12/07/94	1.0	0.4	34.9 J	(0.1) J	79.9	38.7
SB-044	12/07/94	3.0	0.1	(0.6) J	<1	113.7	19.8
SB-045	12/07/94	0.5	13.8	<1	5	87.8	22.3
SB-045	12/07/94	1.0	1.3	8.5	(0.4) J	113	3.5
SB-045	12/07/94	3.0	1.0	3.3 J	4.4	75.4	4.7
SB-046	12/07/94	0.5	12.3	8.1	1.2 J	45.3	68.4
SB-046	12/07/94	1.0	2.6	5.8 J	1.1 J	59.8	16.1
SB-046	12/07/94	3.0	1.8	5.3 J	1.9 J	87.4	11
SB-046	12/15/94	0.5	5.1	11.1	<1	61	40.6
SB-047	12/07/94	0.5	4.7	12.1	<1	46.2	51
SB-047	12/07/94	1.0	0.6	(0.7) J	<1	71	17
SB-047	12/07/94	2.0	0.2	7.6	(0.3) J	94.7	5.3

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL FIELD SCRIN

302403

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-048	12/07/94	0.5	11.1	3.4	<1	70.5	27.5
SB-048	12/07/94	1.0	0.4	6.8 J	3	82.1	13
SB-048	12/07/94	3.0	1.5	<1	<1	38.1	13.1
SB-049	12/06/94	0.5	1	7.2 J	<1	58.9	92.2
SB-049	12/06/94	1.0	0.7	3.5 J	<1	65.7	22.2
SB-049	12/06/94	2.5	2	5.9 J	1.4 J	49.1	10.7
SB-050	12/06/94	0.5	1.9	9.4	<1	42.6	35.2
SB-050	12/06/94	1.0	1.4	4.2 J	(0.4) J	23.4	14.6
SB-050	12/06/94	2.8	1.5	6.1 J	<1	12 J	4.5
SB-051	12/06/94	0.5	0.7	10.1	<1	32.1	40.9
SB-051	12/06/94	1.0	0.8	4.3 J	(0.6) J	65.1	12.1
SB-051	12/06/94	2.5	0.9	2.7 J	1.7 J	20.5	6.8
SB-051	12/15/94	0.5	0.7	9.4	<1	24.8	28.5
SB-052	12/06/94	0.5	0.9	9.4	<1	43.9	21.7
SB-052	12/06/94	1.0	0.3	10.4	<1	58.3	12.6
SB-052	12/06/94	2.5	0.9	4 J	(0.5) J	18.1	5.1
SB-053	12/06/94	0.5	1.3	6.8 J	<1	20.4	44.7
SB-053	12/06/94	1.0	2.2	3.4 J	<1	44.9	14.1
SB-053	12/06/94	2.5	0.7	<1	(0.6) J	72	13.6
SB-054	12/06/94	0.5	38.4	14.8	<1	73.4	52.6
SB-054	12/06/94	1.0	1.6	7 J	2.6	59.9	14.5
SB-054	12/06/94	2.0	2.1	9	(0.7) J	72.1	3.0 J
SB-054	12/15/94	0.5	41.6	17.2	3	55.6	52.3
SB-055	12/06/94	0.5	2.3	<1	<1	65.9	75.3
SB-055	12/06/94	1.0	0.6	<1	2.1	33.9	13.8
SB-055	12/06/94	2.0	1.5	<1	<1	68.7	20.3
SB-056	12/06/94	0.5	5.4	4.2 J	<1	40.4	41.9

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL FIELD SCRIN

302404

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-056	12/06/94	1.0	1.4	5.2 J	(0.3) J	54	10.7
SB-056	12/06/94	2.5	0.8	4.6 J	<1	44.5	11
SB-057	12/06/94	0.5	3.4	2.5 J	2.6	51	25.5
SB-057	12/06/94	1.0	2.7	5.3 J	<1	61.6	3.5 J
SB-057	12/06/94	2.5	2	7 J	1.7 J	83	14.2
SB-058	12/06/94	0.5	2.6	2.8 J	1.2 J	35.1	27.3
SB-058	12/06/94	1.0	0.2	2.9 J	<1	45.8	5.8
SB-058	12/06/94	2.0	1.8	4.1 J	<1	45.7	2.5 J
SB-059	12/08/94	0.5	0.3	5 J	<1	41.3	38.6
SB-059	12/08/94	1.0	2.4	6.3 J	(0.8) J	12.4 J	17.8
SB-059	12/08/94	2.0	1.3	8.9	<1	49.9	(0.9) J
SB-060	12/08/94	0.5	164.6	<1	<1	<1	3 J
SB-060	12/08/94	1.0	7.6	2.8 J	3	23.3	14.9
SB-060	12/15/94	1.0	34.3	(0.8) J	(0.7) J	55.4	8.4
SB-061	12/08/94	0.5	1.4	13.6	<1	<1	56.4
SB-061	12/08/94	1.0	0.6	4.2 J	<1	18	10
SB-061	12/08/94	3.0	2	6.1 J	<1	47.7	7.8
SB-062	12/08/94	0.5	1.1	5.9 J	<1	19.4	103.9
SB-062	12/08/94	1.0	0.8	5.2 J	2.8	4.1 J	15.9
SB-062	12/08/94	2.0	1.1	2.7 J	1.4 J	27.9	6.2
SB-063	12/08/94	0.5	140.4	2.9 J	<1	<1	11.4
SB-063	12/08/94	1.0	65.1	4.4 J	(0.13) J	9.1 J	11.6
SB-063	12/08/94	2.0	6.6	2.6 J	<1	52.6	6.3
SB-064	12/08/94	0.5	0.9	5.9 J	(0.2) J	5.8 J	34.5
SB-064	12/08/94	1.0	0.7	5.9 J	<1	81.5	7
SB-064	12/15/94	0.5	0.5	<1	<1	22.2	49.3
SB-065	12/07/94	1.0	1.3	10.2	<1	91	3.2 J

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL FIELD SCRIN

302405

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-065	12/07/94	2.5	0.2	9.2	<1	81.7	4.3
SB-065	12/08/94	0.5	24.9	15.5	<1	73.8	65.3
SB-066	12/14/94	0.5	3.8	17.1	1 J	70.3	118.4
SB-066	12/16/94	0.5	4	11.5	(0.1) J	49.6	104.8
SB-067	12/14/94	0.5	2.3	12	2.6	55.2	43.3
SB-068	12/14/94	0.5	1.8	15.2	<1	78.1	78.6
SB-069	12/14/94	0.5	2.2	26.5	3.4	77.8	243.9
SB-069	12/15/94	0.5	3.4	29.4	1.5 J	97.1	39.6
SB-070	12/19/94	0.5	3.2	<1	<1	<1	<1
SB-070	12/19/94	1.0	1.4	<1	<1	<1	<1
SB-070	12/19/94	3.0	1	3.7 J	1.7 J	32.8	8.6
SB-071	12/19/94	0.5	4.5	<1	<1	<1	<1
SB-071	12/19/94	1.0	1.9	<1	<1	<1	<1
SB-071	12/19/94	3.0	2.6	(0.9) J	(0.7) J	30.7	12.7
SB-072	12/19/94	0.5	5.2	<1	<1	<1	<1
SB-072	12/19/94	1.0	3.1	<1	<1	<1	<1
SB-072	12/19/94	3.0	1.2	3.9 J	1.5 J	38.1	16.4
SB-073	12/16/94	0.5	0.7	4.0 J	(0.9) J	49.1	62.2
SB-073	12/16/94	1.0	2	35	(0.1) J	104.2	1193.9
SB-074	12/16/94	0.5	124.5	(0.7)	<1	<1	<1
SB-074	12/16/94	1.0	78.5	1.6	(0.9) J	21.8	6.4
SB-075	12/16/94	0.5	32.5	7.5 J	<1	9.2	23.1
SB-076	12/16/94	0.5	0.6	13.6	(0.5) J	12.2	77.7
SB-076	12/16/94	1.0	1.9	7.0 J	2.4	<1	16.4
SB-076	12/16/94	2.0	0.6	7.4 J	<1	58.7	(0.9) J
SB-077	12/16/94	0.5	0.3	1.6 J	<1	21.1	15.6
SB-077	12/16/94	1.0	5.2	7.9 J	(0.6)	33	5.2

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL FIELD SCRIN

302406

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-077	12/16/94	2.0	0.3	7.5 J	< 1	54.8	(0.9) J
SB-078	12/16/94	0.5	0.5	5.0 J	2.6	4.2	16.8
SB-078	12/16/94	1.0	4.4	5.2 J	1.4 J	29.5	15.9
SB-079	12/16/94	0.5	0.7	7.8 J	(0.1) J	61.3	66.1
SB-080	01/10/95	0.5	2.2	---	---	---	---
SB-080	01/10/95	1.0	1	---	---	---	---
SB-080	01/10/95	3.0	<0.2	---	---	---	---
SB-081	01/10/95	0.5	2.6	---	---	---	---
SB-081	01/10/95	1.0	1.4	---	---	---	---
SB-081	01/10/95	3.0	0.4	---	---	---	---
SB-082	01/10/95	0.5	3.2	---	---	---	---
SB-082	01/10/95	1.0	1.1	---	---	---	---
SB-082	01/10/95	3.0	0.5	---	---	---	---
SB-083	01/10/95	0.5	2.6	---	---	---	---
SB-083	01/10/95	1.0	1.1	---	---	---	---
SB-083	01/10/95	3.0	0.3	---	---	---	---
SB-084	03/14/95	0.5	1050	---	---	---	---
SB-084	03/14/95	1.0	198	---	---	---	---
SB-084	03/14/95	3.0	4.8	---	---	---	---
SB-085	03/14/95	0.5	3.9	---	---	---	---
SB-085	03/14/95	1.0	2.7	---	---	---	---
SB-085	03/14/95	3.0	2.6	---	---	---	---
SB-086	03/14/95	0.5	49	---	---	---	---
SB-086	03/14/95	1.0	6.5	---	---	---	---
SB-086	03/14/95	3.0	3.6	---	---	---	---
SB-087	03/14/95	0.5	1825	---	---	---	---
SB-087	03/14/95	1.0	26	---	---	---	---

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL FIELD SCRIN

302407

SUMMARY OF SOIL SAMPLE FIELD SCREENING
RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-087	03/14/95	3.0	51	---	---	---	---
SB-088	03/14/95	0.5	3.5	---	---	---	---
SB-088	03/14/95	1.0	1.8	---	---	---	---
SB-089	03/14/95	0.5	5.9	---	---	---	---
SB-090	03/14/95	0.5	1.9	---	---	---	---
SB-090	03/14/95	1.0	3.1	---	---	---	---
SB-091	03/14/95	0.5	6.4	---	---	---	---
SB-091	03/14/95	1.0	2.1	---	---	---	---
SB-091	03/14/95	3.0	1.8	---	---	---	---
SB-092	03/14/95	0.5	1.5	---	---	---	---
SB-092	03/14/95	1.0	2.7	---	---	---	---
SB-092	03/14/95	3.0	1.3	---	---	---	---
SB-093	03/14/95	0.5	5.9	---	---	---	---
SB-093	03/14/95	1.0	2.4	---	---	---	---
SB-093	03/14/95	3.0	1.5	---	---	---	---
SB-094	03/14/95	0.5	1.3	---	---	---	---
SB-094	03/14/95	1.0	1.3	---	---	---	---
SB-094	03/14/95	3.0	1.5	---	---	---	---
SB-095	03/14/95	0.5	1.9	---	---	---	---
SB-095	03/14/95	1.0	1.5	---	---	---	---
SB-095	03/14/95	3.0	0.8	---	---	---	---
SB-096	03/14/95	0.5	8.1	---	---	---	---
SB-096	03/14/95	1.0	2.3	---	---	---	---
SB-096	03/14/95	3.0	1.6	---	---	---	---
SS-01	10/27/94	0.5	1.8	---	---	---	---

302408

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

SUMMARY OF SOIL SAMPLE TCL VOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Methylene chloride (ug/kg)	Acetone (ug/kg)	2-Butanone (ug/kg)	Tetrachloro ethene (ug/kg)	Toluene (ug/kg)	Styrene (ug/kg)
SB-001	10/26/94	0.5	<12	<12 J	<12 J	<12	<12	<12
SB-002	10/26/94	0.5	<14	<14 J	<14 J	<14	<14	<14
SB-005	10/26/94	0.5	<12	<12 J	<12 J	<12	<12	<12
SB-006	10/27/94	0.5	<11	<11 J	<11 J	<11	<11	<11
SB-007	10/26/94	0.5	<12	<12 J	<12 J	<12	<12	<12
SB-008	10/26/94	0.5	<11	<11 J	<11 J	<11	<11	<11
SB-009	10/26/94	0.5	<11	<11 J	<11 J	<11	<11	<11
SB-009	12/15/94	1.0	<12	<12 J	<12	<12	<12	<12
SB-010	10/26/94	0.5	<11	<20 J	<11 J	<11	<11	<11
SB-010	12/15/94	1.0	<11	<11	<11	<11	<11	<11
SB-011	10/27/94	0.5	<11	<16 J	<11 J	<11	(3) J	<11
SB-012	10/26/94	0.5	<11	<11 J	<11 J	<11	<11	(2) J
SB-012	12/07/94	0.5	<12	(6) JB	<12	<12	<12	(2) J
SB-013	10/26/94	0.5	<11	<11 J	<11 J	<11	<11	<11
SB-014	10/26/94	0.5	<12	<12 J	<12 J	(5) J	<12	<12
SB-014	12/15/94	1.0	<12	16 B	(2) JB	(5) J	(4) J	<12
SB-015	10/26/94	0.5	<12	<12 J	<12 J	<12	<12	<12
SB-015	12/15/94	1.0	(3) J	(4) JB	<12	(3) J	<12	<12
SB-018	10/27/94	0.5	<12	<12 J	<12 J	<12	<12	<12
SB-019	10/27/94	0.5	<11	<11 J	<11 J	<11	<11	<11
SB-034	12/15/94	1.0	(4) JB	<12	<12	<12	<12	<12
SB-037	12/15/94	1.0	<12	14 B	<12	<12	<12	<12
SB-060	12/15/94	1.0	(10) JB	<12	<12	<12	<12	<12
SB-071	12/19/94	3.0	<12	<18 U	(3) J	<12	<12	<12
SS-01	10/27/94	0.5	<12	(5) JB	<12	<12	<12	<12

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL QNT-VOC'S

312409

TABLE 2.3

SUMMARY OF SOIL SAMPLE TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 1G

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-001	SB-002	SB-005	SB-006	SB-007	SB-008
		SAMPLE ID	SB-01-0-0.5	SB-02-0-0.5	SB-05-0-0.5	SB-06-0-0.5D	SB-07-0-0.5	SB-08-0-0.5
		DATE	10/26/94	10/26/94	10/26/94	10/27/94	10/26/94	10/26/94
		DEPTH (ft)	0.5	0.5	0.5	0.5	0.5	0.5
Phenol			< 390	< 450	< 400	(190) J	< 7800	< 7400
Naphthalene			< 390	< 450	< 400	< 360	< 7800	< 7400
4-Chloroaniline			< 390	< 450	< 400	< 360	< 7800	< 7400
Acenaphthylene			< 390	< 450	< 400	< 360	< 7800	< 7400
Dibenzofuran			< 390	< 450	< 400	< 360	< 7800	< 7400
Diethylphthalate			< 390	< 450	(23) J	(23) J	< 7800	< 7400
N-Nitrosodiphenylamine			< 390	< 450	< 400	< 360	< 7800	< 7400
Hexachlorobenzene			< 390	< 450	< 400	(38) J	200000 J	(1700) J
Phenanthrene			(88) BJ	< 450	< 400	< 360	< 7800	< 7400
Anthracene			(27) BJ	< 450	< 400	< 360	< 7800	< 7400
Di-n-butylphthalate			470 B	< 510	630 B	480 B	< 7800	< 7400
Fluoranthene			(120) J	(82) J	(69) J	(55) J	< 7800	< 7400
Pyrene			(120) J	(74) J	(58) J	(40) J	< 7800	< 7400
Butyl benzyl phthalate			< 390	< 450	< 400	< 360	< 7800	< 7400
Benzo(a)anthracene			(66) J	(42) J	(40) J	(22) J	< 7800	< 7400
3,3'-Dichlorobenzidine			< 390	< 450	< 400	< 360	< 7800 J	< 7400
Chrysene			(83) J	(53) J	(45) J	(32) J	< 7800	< 7400
bis(2-Ethylhexyl) phthalate			< 390	< 450	(100) J	< 360	< 7800	< 7400
Di-n-octylphthalate			< 390	< 450	< 400	(19) J	< 7800	< 7400
Benzo(b)fluoranthene			(73) J	(69) J	(61) J	(41) J	< 7800	< 7400
Benzo(k)fluoranthene			(50) J	(27) J	(25) J	< 360	< 7800 J	< 7400
Benzo(a)pyrene			(67) J	(46) J	(34) J	(21) J	< 7800	< 7400
Indeno(1,2,3-cd)pyrene			(41) J	(38) J	(35) J	< 360	< 7800	< 7400
Dibenzo(a,h)anthracene			< 390	< 450	< 400	< 360	< 7800	< 7400
Carbazole			(24) J	< 450	< 400	< 360	< 7800	< 7400
Benzo(g,h,i)perylene			(42) J	(36) J	(30) J	< 360	< 7800	< 7400
Pentachloronitrobenzene			< 390	< 450	< 400	< 360	< 7800	< 7400
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed								
(I) = Less than Detection Limit								
For RCL QNT-SVOC'S								

302410

TABLE 2.3

SUMMARY OF SOIL SAMPLE TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1B of 1G

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT (Units in ug/kg)	SITE	SB-009	SB-009	SB-010	SB-010	SB-011	SB-011B
	SAMPLE ID	SB-09-0-0.5	SB-09/1-2	SB-10-0-0.5	SB-10/1-2	SB-11-0-0.5D	SB-11B (0-0.5)
	DATE	10/28/94	12/15/94	10/28/94	12/15/94	10/27/94	12/14/94
	DEPTH (ft)	0.5	1.0	0.5	1.0	0.5	0.5
Phenol		8400 D	<400	(1400) J	<3700	(280) J	<1500
Naphthalene		<760	<400	<3600	<3700	<3500	<1600
4-Chloroaniline		760	<400	<3600	<3700	<3500	<1600
Acenaphthylene		<760	<400	<3600	<3700	<3500	<1600
Dibenzofuran		<760	<400	<3600	<3700	<3500	<1600
Diethylphthalate		<760	<400	<3600	<3700	<3500	<1600
N-Nitrosodiphenylamine		(70) J	<400	<3600	<3700	<3500	<1600
Hexachlorobenzene		(510) J	(130) J	<3600	<3700	(510) J	<1600
Phenanthrene		<760	<400	<3600	<3700	<3500	<1600
Anthracene		<760	<400	<3600	<3700	<3500	<1600
Di-n-butylphthalate		<760	<400	<3600	4200 B	<3500	<1600
Fluoranthene		(75) J	<400	<3600	<3700	<3500	(98) J
Pyrene		(62) J	<400	<3600	<3700	<3500	(77) J
Butyl benzyl phthalate		<760	<400	<3600	<3700	<3500	<1600
Benzo(a)anthracene		<760	<400	<3600	<3700	<3500	<1600
3,3'-Dichlorobenzidine		<1500	<400 J	(580) J	<3700	<3500	<1600 J
Chrysene		<760	<400	<3600	<3700	<3500	<1600
bis(2-Ethylhexyl) phthalate		<760	<400	(800) J	<3700	(360) J	<1600
Di-n-octylphthalate		<760	<400 J	<3600	<3700 J	<3500	<1600 J
Benzo(b)fluoranthene		(50) J	<400	<3600	<3700 J	<3500	<1600
Benzo(k)fluoranthene		<760	<400	<3600	<3700	<3500	<1600
Benzo(a)pyrene		<760	<400	<3600	<3700	<3500	<1600
Indeno(1,2,3-cd)pyrene		<760	<400	<3600	<3700	<3500	<1600
Dibenzo(a,h)anthracene		<760	<400	<3600	<3700	<3500	<1600
Carbazole		<760	<400	<3600	<3700	<3500	<1600 J
Benzo(g,h,i)perylene		<760	<400	<3600	<3700	<3500	<1600
Pentachloronitrobenzene		<760	<400	<3600	<3700	<3500	<1600

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For RCL QNT-SVOC'S

302411

TABLE 2.3

SUMMARY OF SOIL SAMPLE TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1C of 1G

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-012	SB-012	SB-013	SB-014	SB-014	SB-015
		SAMPLE ID	SB12	SB-12/0.5-1.5	SB-13-0-0.5	SB-14-0-0.5	SB-14/1-2	SB-15-0-0.5
		DATE	10/26/94	12/07/94	10/26/94	10/26/94	12/15/94	10/26/94
		DEPTH (ft)	0.5	0.5	0.5	0.5	1.0	0.5
Phenol			410	410	(730) J	<400	<1000	(330) J
Naphthalene			<370	<390	<740	<400	<1000	<390
4-Chloroaniline			<370	<390	(180) J	(95) J	(130) J	<390
Acenaphthylene			<370	<390	<740	<400	<1000	<390
Dibenzofuran			<370	<390	<740	<400	<1000	<390
Diethylphthalate			(31) J	(31) J	<740	(31) J	<1000	(21) J
N-Nitrosodiphenylamine			<370	<390	<740	<400	<1000	<390
Hexachlorobenzene			<370	<390	(130) J	(76) J	<1000	<390
Phenanthrene			<370	(26) BJ	<740	<400	<1000	<390
Anthracene			<370	<390	<740	<400	<1000	<390
Di-n-butylphthalate			<380	(380) B	<740	<400	<1800	<390
Fluoranthene			(43) J	(43) J	(220) J	(98) J	<1000	(150) J
Pyrene			(36) J	(36) J	(190) J	(76) J	<1000	(110) J
Butyl benzyl phthalate			<370	<390	<740	<400	<1000	<390
Benzo(a)anthracene			(23) J	(23) J	(120) J	(54) J	<1000	(63) J
3,3'-Dichlorobenzidine			<370	<390	<740	<400	<1000 J	<390
Chrysene			(24) J	(24) J	(140) J	(72) J	<1000	(70) J
bis(2-Ethylhexyl) phthalate			(30) J	(30) J	(64) J	<400	<1000	(61) J
Di-n-octylphthalate			<370	<390	<740	<400	<1000 J	<390
Benzo(b)fluoranthene			(36) J	(36) J	(110) J	(96) J	<1000	(69) J
Benzo(k)fluoranthene			<370	<390	(63) J	(34) J	<1000 J	(37) J
Benzo(a)pyrene			(23) J	(23) J	(58) J	(49) J	<1000	(51) J
Indeno(1,2,3-cd)pyrene			<370	<390	(43) J	(46) J	<1000	(36) J
Dibenzo(a,h)anthracene			<370	<390	<740	<400	<1000	<390
Carbazole			<370	<390	<740	<400	<1000 J	<390
Benzo(g,h,i)perylene			<370	<390	(38) J	(40) J	<1000	(35) J
Pentachloronitrobenzene			<370	<390	<740	<400	<1000	<390

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

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For RCL QNT-SVOC'S

302412

TABLE 2.3

SUMMARY OF SOIL SAMPLE TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

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Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-015	SB-018	SB-019	SB-021	SB-024	SB-031B
		SAMPLE ID	SB-15/1-2	SB-18-0-0.5	SB-19-0-0.5	SB-21/0-0.5	SB-24/0-0.5	SB-31B/0-0.5
		DATE	12/15/94	10/27/94	10/27/94	12/15/94	12/15/94	12/14/94
		DEPTH (ft)	1.0	0.5	0.5	0.5	0.5	0.5
Phenol			<2000	(95) J	<740	<470	<450	<390
Naphthalene			<2000	<390	<740	<470	<450	<390
4-Chloroaniline			<2000	<390	<740	<470	<450	<390
Acenaphthylene			<2000	<390	<740	<470	<450	<390
Dibenzofuran			<2000	<390	<740	<470	<450	<390
Diethylphthalate			<2000	(23) J	<740	<470	<450	<390
N-Nitrosodiphenylamine			<2000	<390	<740	<470	<450	<390
Hexachlorobenzene			<2000	<390	<740	<470	<450	<390
Phenanthrene			<2000	<390	<740	<470	<450	<390
Anthracene			<2000	<390	<740	<470	<450	<390
Di-n-butylphthalate			<2000	<390	<740	<1500	<820	<440
Fluoranthene			(220) J	(140) J	(290) J	(34) J	(36) J	<390
Pyrene			<2000	(120) J	(190) J	(34) J	(30) J	<390
Butyl benzyl phthalate			<2000	<390	<740	<470	<450	<390
Benzo(a)anthracene			<2000	(72) J	(120) J	<470	<450	<390
3,3'-Dichlorobenzidine			<2000 J	<390	(230) J	<470 J	<450 J	<390 J
Chrysene			<2000	(84) J	(140) J	<470	<450	<390
bis(2-Ethylhexyl) phthalate			<2000	<390	<740	<470	<450	<390
Di-n-octylphthalate			<2000 J	<390	<740	<470 J	<450 J	<390 J
Benzo(b)fluoranthene			<2000	(95) J	(140) J	<470	<450	<390
Benzo(k)fluoranthene			<2000 J	(34) J	(63) J	<470 J	<450 J	<390 J
Benzo(a)pyrene			<2000	(64) J	(100) J	<470	<450	<390
Indeno(1,2,3-cd)pyrene			<2000	(46) J	(63) J	<470	<450	<390
Dibenzo(a,h)anthracene			<2000	<390	<740	<470	<450	<390
Carbazole			<2000 J	<390	<740	<470 J	<450 J	<390 J
Benzo(g,h,i)perylene			<2000	(48) J	(60) J	<470	<450	<390
Pentachloronitrobenzene			<2000	<390	<740	<470	<450	<390

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-SVOC'S

302413

TABLE 2.3

SUMMARY OF SOIL SAMPLE TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

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Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-034	SB-034B	SB-035	SB-036	SB-037	SB-040
		SAMPLE ID	SB-34/1-2	SB-34B/0-0.5	SB-35/0-0.5	SB-36/0-0.5	SB-37/0-0.5	SB-40/0-0.5
		DATE	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94
		DEPTH (ft)	1.0	0.5	0.5	0.5	1.0	0.5
Phenol			<2000	<940	<3900	39000	(26) J	(280) J
Naphthalene			<2000	<390	<3900	<9800	<390	<2000
4-Chloroaniline			<2000	<390	<3900	<9800	<390	(270) J
Acenaphthylene			<2000	<390	<3900	<9800	<390	<2000
Dibenzofuran			<2000	<390	<3900	<9800	<390	<2000
Diethylphthalate			<2000	<390	<3900	<9800	<390	<2000
N-Nitrosodiphenylamine			<2000	<390	<3900	<9800	<390	<2000
Hexachlorobenzene			<2000	<390	<3900	<9800	<390	(270) J
Phenanthrene			<2000	(320) J	<3900	<9800	<390	(1400) J
Anthracene			<2000	(77) J	<3900	<9800	<390	(380) J
Di-n-butylphthalate			<2000	<5400	<3800	<9800	<660	<1800
Fluoranthene			<2000	710 J	<3900	<9800	<390	(520) JB
Pyrene			<2000	660 J	<3900	<9800	<390	(1600) J
Butyl benzyl phthalate			<2000	740 J	<3900	<9800	<390	<2000
Benzo(a)anthracene			<2000	400 J	<3900	<9800	<390	(880) J
3,3'-Dichlorobenzidine			<2000 J	<940 J	<3900 J	<9800	<390 J	<2000 J
Chrysene			<2000	(370) J	<3900	<9800	<390	(710) J
bis(2-Ethylhexyl) phthalate			<2000	670 J	<3900	<9800	<390	(150) J
Di-n-octylphthalate			<2000 J	<940 J	<3900 J	<9800 J	<390 J	<2000 J
Benzo(b)fluoranthene			<2000	(380) J	<3900	<9800 J	<390	(840) J
Benzo(k)fluoranthene			<2000 J	(160) J	<3900	<9800	<390	(340) J
Benzo(a)pyrene			<2000	(300) J	<3900	<9800	<390	(640) J
Indeno(1,2,3-cd)pyrene			<2000	(140) J	<3900	<9800	<390	(350) J
Dibenzo(a,h)anthracene			<2000	<390	<3900	<9800	<390	(130) J
Carbazole			<2000 J	<390	<3900	<9800	<390 J	<1800
Benzo(g,h,i)perylene			<2000	(120) J	<3900	<9800	<390	(320) J
Pentachloronitrobenzene			<2000	<390	<3900	<9800	<390	(1300) J
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed								
(I) = Less than Detection Limit								
For RCL QNT-SVOC'S								

302414

TABLE 2.3

SUMMARY OF SOIL SAMPLE TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1F of 1G

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-046	SB-051	SB-054	SB-060	SB-064	SB-066
		SAMPLE ID	SB-46/0-0.5	SB-51/0-0.5	SB-54/0-0.5	SB-60/1-2	SB-64/0-0.5	SB-66/0-0.5
		DATE	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94
		DEPTH (ft)	0.5	0.5	0.5	1.0	0.5	0.5
Phenol			<380	<2000	<3900	<390	<500	(97) J
Naphthalene			<400	<2000	<3900	<390	<500	(59) J
4-Chloroaniline			(120) J	<2000	<3900	<390	<500	<980
Acenaphthylene			<400	<2000	<3900	<390	<500	(310) J
Dibenzofuran			<400	<2000	<3900	<390	<500	<980
Diethylphthalate			<400	<2000	<3900	<390	<500	<980
N-Nitrosodiphenylamine			<400	<2000	<3900	<390	<500	<980
Hexachlorobenzene			<400	<2000	<3900	<390	<500	<980
Phenanthrene			<400	<2000	<3900	<390	(70) J	(500) J
Anthracene			<400	<2000	<3900	<390	<500	(780) J
Di-n-butylphthalate			<5400	<2000	<3900	<4700	<500 J	<6800
Fluoranthene			(39) J	<2000	<3900	<390	(31) J	3700
Pyrene			(49) J	<2000	<3900	<390	(33) J	2900
Butyl benzyl phthalate			(350) J	<2000	<3900	1000 J	<500	(180) J
Benzo(a)anthracene			<400	<2000	<3900	<390	<500	2300
3,3'-Dichlorobenzidine			<400 J	<2000 J	<3900 J	<390 J	<500	<980 J
Chrysene			(29) J	<2000	<3900	<390	<500	3100
bis(2-Ethylhexyl) phthalate			(260) J	<2000	<3900	1400 J	<500	(120) J
Di-n-octylphthalate			<400 J	<2000 J	<3900 J	<390 J	<1000 J	<980 J
Benzo(b)fluoranthene			(62) J	<2000	<3900	<390	<1000 J	4500
Benzo(k)fluoranthene			<400 J	<2000	<3900	<390	<1000	1700
Benzo(a)pyrene			(65) J	<2000	<3900	<390	<500	1300
Indeno(1,2,3-cd)pyrene			(32) J	<2000	<3900	<390	<500	1100
Dibenzo(a,h)anthracene			<400	<2000	<3900	<390	<500	(300) J
Carbazole			<400	<2000	<3900	<390	<500	(270) J
Benzo(g,h,i)perylene			(59) J	<2000	<3900	<390	<500	(790) J
Pentachloronitrobenzene			<400	<2000	<3900	<390	<500	<980

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-SVOC'S

302415

TABLE 2.3

SUMMARY OF SOIL SAMPLE TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1G of 1G

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-069	SB-071	SS-01
		SAMPLE ID	SB-69/0-0.5	SB-71/3-4	SS01
		DATE	12/15/94	12/19/94	10/27/94
		DEPTH (ft)	0.5	3.0	0.5
Phenol			<440	<390	<410
Naphthalene			(74) J	<390	<410
4-Chloroaniline			<440	<390	<410
Acenaphthylene			(33) J	<390	<410
Dibenzofuran			(34) J	<390	<410
Diethylphthalate			<440	<390	(31) J
N-Nitrosodiphenylamine			<440	<390	<410
Hexachlorobenzene			<440	<390	<410
Phenanthrene			(190) J	<390	<410
Anthracene			(45) J	<390	<410
Di-n-butylphthalate			<590	<390	<410
Fluoranthene			(420)	<390	(82) J
Pyrene			(380) J	<390	(68) J
Butyl benzyl phthalate			<440	<390	<410
Benzo(a)anthracene			(220) J	<390	<410
3,3'-Dichlorobenzidine			<440 J	<390	<410
Chrysene			(330) J	<390	(48) J
bis(2-Ethylhexyl) phthalate			<440	<390	<410
Di-n-octylphthalate			<440 J	<390 J	<410
Benzo(b)fluoranthene			480	<390 J	(65) J
Benzo(k)fluoranthene			(150) J	<390	(21) J
Benzo(a)pyrene			(190) J	<390	(42) J
Indeno(1,2,3-cd)pyrene			(150) J	<390	(32) J
Dibenzo(a,h)anthracene			(44) J	<390	<410
Carbazole			(75) J	<390	<410
Benzo(g,h,i)perylene			(130) J	<390	(29) J
Pentachloronitrobenzene			<440	<390	<410
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed (I) = Less than Detection Limit For RCL QNT-SVOC'S					

302416

**SUMMARY OF SOIL SAMPLE TCL PESTICIDES
RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey**

302417

TABLE 2.4

SUMMARY OF SOIL SAMPLE TCL PESTICIDES
RESULTS

Page: 1B of 1H

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-009	SB-009	SB-010	SB-010	SB-011	SB-011B
		SAMPLE ID	SB-09-0-0.5	SB-09/1-2	SB-10-0-0.5	SB-10/1-2	SB-11-0-0.5D	SB-11B (0-0.5)
		DATE	10/26/94	12/15/94	10/26/94	12/15/94	10/27/94	12/14/94
		DEPTH (ft)	0.5	1.0	0.5	1.0	0.5	0.5
beta-BHC			<770	<1000 J	<20000	<190 J	<1800	<2000
Endosulfan I			<770 J	<21000 J	<20000	<190 J	<18000 D	<2000
Dieldrin			4600 JN	<21000 J	350000 D	<380 J	7700 JN	<4000
4,4'-DDE			3300 J	<2000 J	<40000 J	<380 JN	4200 JN	<4000 J
Endrin			<1500	<2000 J	<40000	<380 J	<3500	<3800
4,4'-DDD			1700 JN	13000 JN	51000 JN	1100 JN	6700 JN	4900 JN
4,4'-DDT			120000 D	210000 J	2100000 D	12000 J	360000 D	78000 D
Methoxychlor			<7700	<1000 J	<200000	<1900 J	<18000	<20000
Endrin aldehyde			<1500	<2000 J	<40000	<380 J	<3500	<4000

302418

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-PESTCD

SUMMARY OF SOIL SAMPLE TCL PESTICIDES RESULTS

PHASE II SITE INVESTIGATION REPORT

Moorestown, New Jersey

302419

For RCL QNT-PESTCD

TABLE 2.4

SUMMARY OF SOIL SAMPLE TCL PESTICIDES
RESULTS

Page: 1D of 1H

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-015	SB-018	SB-019	SB-021	SB-024	SB-031B
		SAMPLE ID	SB-15/1-2	SB-18-0-0.5	SB-19-0-0.5	SB-21/0-0.5	SB-24/0-0.5	SB-31B/0-0.5
		DATE	12/15/94	10/27/94	10/27/94	12/15/94	12/15/94	12/14/94
		DEPTH (ft)	1.0	0.5	0.5	0.5	0.5	0.5
beta-BHC			<1000	<80	500 J	<2.2	<10	<100
Endosulfan I			<1000	<80	670 J	<2.2	<10	<100
Dieldrin			<2000	<160 J	<2000	<4.3	<20	<200
4,4'-DDE			2100	640	20000	37	77	<200 J
Endrin			<2000	<160	<2000	<4.3	<20	<200
4,4'-DDD			3100 JN	<160 JN	3800 JN	<4.3 JN	<22 JN	500 J
4,4'-DDT			53000 D	2400 D	280000 D	22 B	<32	3800 J
Methoxychlor			<10000	<800	<9600	<20	<100	<100
Endrin aldehyde			<2000	<160	<2000 J	<4.3	<20	<200
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed For RCL QNT-PESTCD								

302420

TABLE 2.4

SUMMARY OF SOIL SAMPLE TCL PESTICIDES
RESULTS

Page: 1E of 1H

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-034	SB-034B	SB-035	SB-036	SB-037	SB-040
		SAMPLE ID	SB-34/1-2	SB-34B/0-0.5	SB-35/0-0.5	SB-36/0-0.5	SB-37/0-0.5	SB-40/0-0.5
		DATE	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94
		DEPTH (ft)	1.0	0.5	0.5	0.5	1.0	0.5
beta-BHC			<2000	<200	<2000	<250 J	<10	<91
Endosulfan I			<2000	<200	<2000	<2500 DJ	<10	<91 JN
Dieldrin			<4000	<400	<4000 JN	<4900 DJ	<19	790 J
4,4'-DDE			<4000 J	520	<4000 J	1300 J	<19 J	2400
Endrin			<4000	<400	<4000	<490 J	<19	360 X
4,4'-DDD			7900 JN	2900 JN	14000 JN	4100 JN	27 CJN	1400 JN
4,4'-DDT			120000 D	32000	140000 D	36000 J	590 J	9100 D
Methoxychlor			<20000	<2000	<20000	<25000 JD	<97	4900 X
Endrin aldehyde			<4000	<400	<4000	<490 J	<19	<180

302421

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-PESTCD

TABLE 2.4

SUMMARY OF SOIL SAMPLE TCL PESTICIDES
RESULTS

Page: 1F of 1H

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-046	SB-051	SB-054	SB-060	SB-064	SB-066
		SAMPLE ID	SB-46/0-0.5	SB-51/0-0.5	SB-54/0-0.5	SB-60/1-2	SB-64/0-0.5	SB-66/0-0.5
		DATE	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94	12/15/94
		DEPTH (ft)	0.5	0.5	0.5	1.0	0.5	0.5
beta-BHC			<97	<20	<2000 J	<20	<26	<200
Endosulfan I			<97	<20 J	<2000 JX	<20	<26	<200 JN
Dieldrin			<190	<40	<4000	<40	<510 D	<400
4,4'-DDE			280	1300	11000	<40 JC	150	3700
Endrin			<190	<40	<4000	<40	<53	<400
4,4'-DDD			350 JN	150 JN	15000 JN	86 CJN	980 D	700 JN
4,4'-DDT			4300 D	1900 D	160000 D	680 DU	190	11000 D
Methoxychlor			<970 J	<200	<20000	<200	<260	<2000
Endrin aldehyde			<190	<40	<4000	<40	<53	<400
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed For RCL QNT-PESTCD								

302422

TABLE 2.4

SUMMARY OF SOIL SAMPLE TCL PESTICIDES
RESULTS

Page: 1G of 1H

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SB-069	SB-071	SB-084	SB-085	SB-088	SB-090
		SAMPLE ID	SB-69/0-0.5	SB-71/3-4	SB-084/1-2	SB-085/0-0.5	SB-088/0-0.5	SB-090/1-1.5
		DATE	12/15/94	12/19/94	03/14/95	03/14/95	03/14/95	03/14/95
		DEPTH (ft)	0.5	3.0	1.0	0.5	0.5	1.0
beta-BHC			<230	<2.0	<9900	<130	<20	<10
Endosulfan I			<230	<2.0	<9900 J	<130 J	200 D	<10
Dieldrin			<460	<4.0 J	<20000 J	310	43 D	25
4,4'-DDE			1600	<4.0 J	<20000 J	1800	600 D	180
Endrin			<460	<4.0	<20000	<260	<40	<19
4,4'-DDD			500 JN	<4.0 JN	49000 JN	1300 D	110 JN	350 D
4,4'-DDT			8100 J	9.8 U	760000 D	7700 D	1200 D	570 DJ
Methoxychlor			<2300	<20	<99000	<1300	<200	<96
Endrin aldehyde			<460	<4.0	<20000	<260	<40	<19

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-PESTCD

302423

TABLE 2.4

SUMMARY OF SOIL SAMPLE TCL PESTICIDES
RESULTS

Page: 1H of 1H

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT (Units in ug/kg)	SITE	SB-093	SB-094	SB-095	SB-096
	SAMPLE ID	SB-093/0-0.5	SB-094/0-0.5	SB-095/1-2	SB-096/0-0.5
	DATE	03/14/95	03/14/95	03/14/95	03/14/95
	DEPTH (ft)	0.5	0.5	1.0	0.5
beta-BHC		<22	<20	<10	<190
Endosulfan I		<22	<20 J	<10	<190
Dieldrin		180	<40	<19	720 J
4,4'-DDE		1500 D	1300 D	120	870
Endrin		<43	<40	<19	<380
4,4'-DDD		560 DJ	43 JN	<19 JN	2500 DJ
4,4'-DDT		3700 D	560 D	140 J	16000
Methoxychlor		<220	<200	<96	15000 D
Endrin aldehyde		<43	390 UD	<19	<380

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-PESTCD

302424

SUMMARY OF SOIL SAMPLE SEVIN AND
MALATHION RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Sevin (ug/kg)	Malathion (ug/kg)
SB-001	10/26/94	0.5	<33	<17
SB-002	10/26/94	0.5	<33	<17
SB-005	10/26/94	0.5	<33	<17
SB-006	10/27/94	0.5	<33	<17
SB-007	10/26/94	0.5	<33	<17
SB-008	10/26/94	0.5	<33	<17
SB-009	10/26/94	0.5	77	<170
SB-009	12/15/94	1.0	<250	<17
SB-010	10/26/94	0.5	41	260 P
SB-010	12/15/94	1.0	<250	<17
SB-011	10/27/94	0.5	58	<170
SB-011B	12/14/94	0.5	<250	<17
SB-012	10/26/94	0.5	<33	<17
SB-012	12/07/94	0.5	<33	<17
SB-013	10/26/94	0.5	510	23 P
SB-014	10/26/94	0.5	290	<17
SB-014	12/15/94	1.0	230000	<33
SB-015	10/26/94	0.5	<33	<17
SB-015	12/15/94	1.0	850	<17
SB-018	10/27/94	0.5	<33	19 P
SB-019	10/27/94	0.5	<33	<17
SB-021	12/15/94	0.5	<250	<17
SB-024	12/15/94	0.5	<250	<17
SB-031B	12/14/94	0.5	<250	<17
SB-034	12/15/94	1.0	5200	<17
SB-034B	12/15/94	0.5	840	<17
SB-035	12/15/94	0.5	440	<33
SB-036	12/15/94	0.5	<250	180
SB-037	12/15/94	1.0	<250	<17
SB-040	12/15/94	0.5	<250	<33
SB-046	12/15/94	0.5	<250	<33
SB-051	12/15/94	0.5	<250	<17
SB-054	12/15/94	0.5	<250	<17
SB-060	12/15/94	1.0	<250	<33

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-HRBCD2

302425

TABLE 2.5

SUMMARY OF SOIL SAMPLE SEVIN AND
MALATHION RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Sevin (ug/kg)	Malathion (ug/kg)
SB-064	12/15/94	0.5	<250	<17
SB-066	12/15/94	0.5	8300	<17
SB-069	12/15/94	0.5	330	<33
SB-071	12/19/94	3.0	<250	<17
SB-084	03/14/95	1.0	660	<67 U
SB-085	03/14/95	0.5	<67	<67 U
SB-088	03/14/95	0.5	<67 U	<67 U
SB-090	03/14/95	1.0	<67 U	<67 U
SB-093	03/14/95	0.5	<17 U	<67 U
SB-094	03/14/95	0.5	<50 U	<17 U
SB-095	03/14/95	1.0	<50 U	<17 U
SB-096	03/14/95	0.5	<67 U	<67 U

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

TABLE 2.6

**SUMMARY OF SOIL SAMPLE METALS RESULTS
PHASE II SITE INVESTIGATION REPORT**

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-001	10/26/94	0.5	7.8	<0.23	12.9	46.1
SB-002	10/26/94	0.5	12.3	<0.2	12.2	35.9
SB-005	10/26/94	0.5	22.7	<0.2	16.9	35.9
SB-006	10/27/94	0.5	6.7	<0.2	15.3	20.9
SB-007	10/26/94	0.5	132	<0.2	15.8	408
SB-008	10/26/94	0.5	7.2	<0.2	19.1	23.2
SB-009	10/26/94	0.5	8.4	1.6	18	34.6
SB-009	12/15/94	1.0	6.6 R	<0.24	11	31.3 J
SB-010	10/26/94	0.5	9.8	<0.2	15	28
SB-010	12/15/94	1.0	7.1 R	<0.45	16.2	11.9 J
SB-011	10/27/94	0.5	6.9	<0.2	9.4	32.8
SB-011B	12/14/94	0.5	14.2	<0.91	10.1 B	118 J
SB-012	10/26/94	0.5	4.4	<0.22	15.6	20.7
SB-012	12/07/94	0.5	4.4	<0.2	15.6	20.7
SB-013	10/26/94	0.5	16	<0.2	18.7	103
SB-014	10/26/94	0.5	12.2	<0.2	11.3	50.3
SB-014	12/15/94	1.0	11.2	<0.24	7.9	46.5
SB-015	10/26/94	0.5	9.1	<0.2	20	30.5
SB-015	12/15/94	1.0	24.8	<0.99	20.7	124 J
SB-018	10/27/94	0.5	8.1	<0.2	22.3	88.1
SB-019	10/27/94	0.5	7.9	<0.2	16.5	46.8
SB-021	12/15/94	0.5	11.2	<0.25	10.9	30.1
SB-024	12/15/94	0.5	15.4	<0.26	13.2	37.3
SB-031B	12/14/94	0.5	5.1	<0.23	15.3	16.9
SB-034	12/15/94	1.0	6.4	<0.24	12.7	21
SB-034B	12/15/94	0.5	13.1	<0.23	19.5	68.9 J
SB-035	12/15/94	0.5	7.5	<0.23	6.9	32.5
SB-036	12/15/94	0.5	53.7 R	4.3	46.1	531 J
SB-037	12/15/94	1.0	5.8	<0.23	18.4	14.5
SB-040	12/15/94	0.5	1.7 B	2.0 B	4.8	63.6
SB-046	12/15/94	0.5	3.1	<0.23	8.6	35.9 J
SB-051	12/15/94	0.5	5.1	<0.49	13.1	28.9 J
SB-054	12/15/94	0.5	12	<0.23	16.8	42.6 J
SB-060	12/15/94	1.0	3.6	<0.24	14.1	5.6 J

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-METALS

302427

TABLE 2.6
SUMMARY OF SOIL SAMPLE METALS RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 2A of 2A

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SB-064	12/15/94	0.5	4.8	<0.93	18.7	40.3
SB-066	12/15/94	0.5	15.9	<1.0	23.2	72.5 J
SB-069	12/15/94	0.5	15	<0.26	9.4	37.6
SB-071	12/19/94	3.0	3.1	<0.71	13.6	5.1 J
SB-084	03/14/95	1.0	25.4 J	<0.47	40.9 J	74.1 J
SB-085	03/14/95	0.5	14.6 J	<0.31	15.4 J	62.7 J
SB-088	03/14/95	0.5	12.7 J	<0.23	19 J	40.7 J
SB-090	03/14/95	1.0	8.2 J	<0.22	22.1 J	33.9 J
SB-093	03/14/95	0.5	7 J	0.25	13.2 J	30.7 J
SB-094	03/14/95	0.5	<3 J	<0.23	14.2 J	12.0 J
SB-095	03/14/95	1.0	3.4 J	<0.22	16.3 J	5.2 J
SB-096	03/14/95	0.5	21.1 J	<0.23	11.5 J	97.9 J

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-METALS

302428

TABLE 2.7

SUMMARY OF SOIL SAMPLE GENERAL PARAMETER
RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Chromium (Hexavalent) (mg/kg)	Total Organic H alogen (mg/kg)	Total Solids (%)
SB-001	10/26/94	0.5	<1	<1	83.1
SB-002	10/26/94	0.5	<1 J	<1	82.9
SB-005	10/26/94	0.5	<1 J	<1	81.8
SB-006	10/27/94	0.5	<1 J	<1	91.4
SB-007	10/26/94	0.5	<1 J	2400	85.1
SB-007	01/24/95	0.0	---	---	71.2
SB-007	01/25/95	1.0	---	---	81.8
SB-008	10/26/94	0.5	<1 J	<1	88.4
SB-009	10/26/94	0.5	<1 J	<1	86.7
SB-009	12/15/94	1.0	<1 J	15	84.2
SB-010	10/26/94	0.5	<1 J	250	90
SB-010	12/15/94	1.0	<1 J	<1	88.3
SB-011	10/27/94	0.5	<1 J	180	93.8
SB-011B	12/14/94	0.5	2.2 J	<1	86.3
SB-012	10/26/94	0.5	<1 J	24	89.3
SB-012	12/07/94	0.5	<1	24	89.3
SB-013	10/26/94	0.5	<1 J	<1	85.4
SB-014	10/26/94	0.5	<1	23	82.8
SB-014	12/15/94	1.0	<1 J	240	84
SB-015	10/26/94	0.5	<1 J	<1	85.5
SB-015	12/15/94	1.0	<1 J	45	81.6
SB-018	10/27/94	0.5	<1 J	<1	85.9
SB-019	10/27/94	0.5	<1	<1	87.7
SB-021	12/15/94	0.5	1.4 J	<1	79.5
SB-024	12/15/94	0.5	<1 J	<1	77.1
SB-031B	12/14/94	0.5	<1 J	40	83.9
SB-034	12/15/94	1.0	<1 J	140 J	84.3
SB-034B	12/15/94	0.5	1.4 J	<1	89
SB-035	12/15/94	0.5	<1 J	810	87.1
SB-036	12/15/94	0.5	<1 J	960	67.8
SB-037	12/15/94	1.0	<1 J	<1	87.5
SB-040	12/15/94	0.5	<1 J	190 J	94.2
SB-046	12/15/94	0.5	1.8 J	2.6 J	84.9
SB-051	12/15/94	0.5	3.1 J	<1 J	81

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

TABLE 2.7
SUMMARY OF SOIL SAMPLE GENERAL PARAMETER
RESULTS

Page: 2A of 2A

PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Chromium (Hexavalent) (mg/kg)	Total Organic H alogen (mg/kg)	Total Solids (%)
SB-054	12/15/94	0.5	1.1 J	97 J	85.6
SB-060	12/15/94	1.0	<1 J	<1 J	82.5
SB-064	12/15/94	0.5	<1 J	<1 J	61.9
SB-066	12/15/94	0.5	1.3 J	14 J	80.1
SB-069	12/15/94	0.5	<1 J	<1 J	80.6
SB-071	12/19/94	3.0	<1	220	86.5
SB-084	03/14/95	1.0	<1 J	---	---
SB-085	03/14/95	0.5	<1 J	---	---
SB-088	03/14/95	0.5	<1 J	---	---
SB-090	03/14/95	1.0	1 J	---	---
SB-093	03/14/95	0.5	<1 J	---	---
SB-094	03/14/95	0.5	<1 J	---	---
SB-095	03/14/95	1.0	<1 J	---	---
SB-096	03/14/95	0.5	<1 J	---	---

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

SUMMARY OF TEST PIT FIELD SCREENING
RESULTS
PHASE II SITE INVESTIGATION
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Total Chloride -DDT, DDD, and DDE (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
ST-01	12/13/94	9.0	0.4	---	---	---	---
TP-05A	12/13/94	5.0	0.4	12.8	<1	73.1	14.4
TP-05B	12/13/94	1.0	279	6 J	<1	47.3	37.9
TP-06A	12/13/94	1.0	2000	3.7 J	7.8	36.3	44.2
TP-06B	12/13/94	5.0	312	5 J	11.4	60.6	37.9
TP-06C	12/13/94	5.0	1.9	3.7 J	<1	15.2 J	4.7
TP-07A	12/13/94	3.0	475	85.2	1 J	113.9	41.8
TP-07B	12/13/94	4.0	0.5	3.4 J	1.4 J	137.9	10.6
TP-07C	12/13/94	8.0	1	2.5 J	(0.2) J	9.1	11.6
TP-08B	12/13/94	5.0	3.2	1.2 J	<1	27.2	12.7
TP-11A	12/14/94	1.0	116.3	(0.6) J	<1	<1	1.1 J
TP-11B	12/14/94	3.0	3.6	4.9 J	(0.6) J	<1	12.2

302431

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL FIELD SCRIN

SUMMARY OF TEST PIT TCL VOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Acetone (ug/kg)	Carbon disulfide (ug/kg)	2-Butanone (ug/kg)	4-Methyl-2- pentanone (ug/kg)	Tetrachloro ethene (ug/kg)	Toluene (ug/kg)	Chlorobenzene (ug/kg)
TP-06B	12/13/94	5.0	76 BU	720	(16) J	< 66	< 66	(29) J	(21) J
TP-06C	12/13/94	5.0	(7)	< 12	< 12	< 12	< 12	< 12	< 12
TP-07A	12/13/94	3.0	< 12	(4) J	< 12	< 12	(3) J	< 12	(8) J
TP-07B	12/13/94	4.0	< 14 B	< 11	< 11	(3) J	< 11	< 11	< 11
TP-07C	12/13/94	8.0	< 41	< 12	(3) J	< 12	< 12	< 12	< 12
TP-08A	12/13/94	1.0	< 12 B	< 11	< 11	< 11	< 11	15	< 11
TP-11A	12/14/94	1.0	25 B	< 12	(3) J	< 12	< 12	< 12	< 12
TP-11B	12/14/94	3.0	< 12	< 12	< 12 J	< 12	(3) J	< 12	(5) J

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL QNT-VOC'S

302432

SUMMARY OF TEST PIT TCL VOCs RESULTS
PHASE II SITE INVESTIGATION REPORTPulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Xylene (total) (ug/kg)
TP-06B	12/13/94	5.0	<66
TP-06C	12/13/94	5.0	<12
TP-07A	12/13/94	3.0	17
TP-07B	12/13/94	4.0	<11
TP-07C	12/13/94	8.0	<12
TP-08A	12/13/94	1.0	<11
TP-11A	12/14/94	1.0	<12
TP-11B	12/14/94	3.0	<12

302433

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-VOC'S

SUMMARY OF TEST PIT TCL SVOCs RESULTS

302434

() = Less than Detection Limit

For RCL QNT-SVOC'S

TABLE 3.3

SUMMARY OF TEST PIT TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1B of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT (Units in ug/kg)	SITE	TP-11A	TP-11B
	SAMPLE ID	TP-11A/1-2	TP-11B/3-4
	DATE	12/14/94	12/14/94
	DEPTH (ft)	1.0	3.0
2-Methylphenol		<390	<400
1,2,4-Trichlorobenzene		<390	<400
Hexachlorobutadiene		<390	<400
2-Methylnaphthalene		<390	<400
Hexachlorobenzene		<390	<400
Phenanthrene		(88) J	<400
Di-n-butylphthalate		<390	1300 B
Fluoranthene		(94) J	<400
Pyrene		(64) J	<400
Benzo(a)anthracene		(31) J	<400
Chrysene		(56) J	<400
Benzo(b)fluoranthene		(57) J	<400
Benzo(k)fluoranthene		(20) J	<400
Benzo(a)pyrene		(24) J	<400
<div>302435</div>			
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed (I) = Less than Detection Limit For RCL QNT-SVOC'S			

TABLE 3.4

SUMMARY OF TEST PIT TCL PESTICIDES
RESULTS

Page: 1A of 1B

PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT (Units in ug/kg)	SITE	TP-06B	TP-06C	TP-07A	TP-07B	TP-07C	TP-08A
	SAMPLE ID	TP06B/5-6	TP-06C/5-6	TP-07A/3-4	TP-07B/4-5	TP-07C/8-9	TP-08A/1-2
	DATE	12/13/94	12/13/94	12/13/94	12/13/94	12/13/94	12/13/94
	DEPTH (ft)	5.0	5.0	3.0	4.0	8.0	1.0
alpha-BHC		(9900) J	25 J	7800	73 R	9.4 J	(740) J
beta-BHC		<11000 J	2.6 J	(510) JN	16 J	7.6	<3900 J
delta-BHC		(2400) J	2.6 J	(630) J	65 J	<2.1 J	<3900 J
Lindane		(7300) J	7.3 J	(1800)	130 J	6.2	(440) J
Aldrin		<11000 J	<1.9 J	(590) J	<1.9 J	<2.1	<3900 J
Heptachlor epoxide		<11000 J	<1.9 J	<2100	<1.9 J	(0.17) R	<3900 J
Endosulfan I		(1800) JN	<1.9 J	<2100	<1.9 J	<2.1	<3900 J
Dieldrin		(12000) JN	(2.9) J	43000 J	33 J	20 J	(6200) JN
4,4'-DDE		<220000 J	<3.8 J	(2500) J	<3.7 J	<4.1	38000 J
Endrin		<22000 J	<3.8 J	(500) JN	<3.7 JD	(0.25) J	<7800 J
4,4'-DDD		250000 JN	(0.38) R	25000 JN	<3.7 JD	(1.3) JN	54000 JN
4,4'-DDT		950000 J	6.7 JN	250000	95 J	30 J	270000 J
Endrin ketone		<22000 J	(1.1) J	(1200) J	17 J	(1.8) J	(800) J
gamma-Chlordane		<11000 J	<1.9 J	<2100	<19 J	<2.1	<3900 J

302436

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-PESTCD

TABLE J.4

SUMMARY OF TEST PIT TCL PESTICIDES
RESULTS

Page: 1B of 1B

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT (Units in ug/kg)	SITE	TP-11A	TP-11B
	SAMPLE ID	TP-11A/1-2	TP-11B/3-4
	DATE	12/14/94	12/14/94
	DEPTH (ft)	1.0	3.0
alpha-BHC		(48) J	790 J
beta-BHC		<200 J	16 JN
delta-BHC		<200 J	24 J
Lindane		(34) J	210 DJ
Aldrin		<200 J	<4.2 J
Heptachlor epoxide		<200 J	<4.2 J
Endosulfan I		(84) J	<4.2 J
Dieldrin		<1900 J	<80 DJ
4,4'-DDE		(260) JN	(6.9) J
Endrin		<400 J	<8.3 J
4,4'-DDD		2800 JN	50 JN
4,4'-DDT		13000 J	220 DJ
Endrin ketone		(29) JN	<8.3 J
gamma-Chlordane		(14) J	<4.2 J
302437			
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed			
(I) = Less than Detection Limit			
For RCL QNT-PESTCD			

SUMMARY OF TEST PIT HERBICIDES RESULTS
PHASE II SITE INVESTIGATION REPORTPulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	2,4-D (ug/kg)	2,4,5-TP (Silvex) (ug/kg)	2,4,5-T (ug/kg)
TP-06B	12/13/94	5.0	<2.50	<0.42	<0.83
TP-06C	12/13/94	5.0	<1.0	<0.17	<0.33
TP-07A	12/13/94	3.0	<0.50	<0.1	<0.2
TP-07B	12/13/94	4.0	<0.50	<0.1	<0.2
TP-07C	12/13/94	8.0	<0.50	<0.1	<0.2
TP-08A	12/13/94	1.0	<0.50	<0.1	<0.2
TP-11A	12/14/94	1.0	<0.50	<0.1	<0.2
TP-11B	12/14/94	3.0	<0.50	<0.1	<0.2

302438

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-HRBCD1

TABLE 3.6

SUMMARY OF TEST PIT DIOXIN RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	TP-06B	TP-06C	TP-07A	TP-07B	TP-07C	TP-08A
		SAMPLE ID	TP06B/5-6	TP-06C/5-6	TP-07A/3-4	TP-07B/4-5	TP-07C/8-9	TP-08A/1-2
		DATE	12/13/94	12/13/94	12/13/94	12/13/94	12/13/94	12/13/94
		DEPTH (ft)	5.0	5.0	3.0	4.0	8.0	1.0
2,3,7,8-TCDD			<0.82	<0.057	<0.25	<0.082	<0.31	<0.97
2,3,7,8-TCDF			<1.4	<0.120	<1.1	<0.120	<0.12	<1.5
1,2,3,7,8-PeCDF			<1.1	<0.096	<1.3	<0.10	<0.082	<1.1
1,2,3,7,8-PeCDD			<1.3	<0.095	<0.29	<0.10	<0.083	<1.4
2,3,4,7,8-Pentachlorodibenzofuran			<1.2	<0.11	<1.4	<0.11	<0.091	<1.2
1,2,3,4,7,8-HxCDF			<1.6 J	<0.062	<0.053	<0.057	<0.052	<0.048
1,2,3,6,7,8-HxCDF			<1.4 J	<0.054	<0.046	<0.049	<0.045	<0.041
1,2,3,4,7,8-HxCDD			<0.98 J	<0.10	<0.10	<0.088	<0.062	<0.069
1,2,3,6,7,8-HxCDD			<0.8 J	<0.089	<0.089	<0.077	<0.053	<0.060
1,2,3,7,8,9-HxCDD			<0.90 J	<0.093	<0.093	<0.080	<0.056	<0.062
2,3,4,6,7,8-HxCDF			<1.6 J	<0.062	<0.053	<0.057	<0.052	<0.048
1,2,3,7,8,9-HxCDF			<1.9 J	<0.074	<0.063	<0.067	<0.062	<0.057
1,2,3,4,6,7,8-HpCDF			<0.62 R	<0.058	<0.044	<0.065	<0.042	<0.042
1,2,3,4,6,7,8-HpCDD			<0.48 J	<0.085	<0.15	<0.11	<0.10	<0.095
1,2,3,4,7,8,9-HpCDF			<0.74 R	<0.073	<0.054	<0.081	<0.052	<0.052
OCDD			<1.5 R	<0.22	3.9 J	0.5 J	<0.073	5.4
OCDF			<0.71 J	<0.11	<0.12	<0.088	<0.073	<0.21

302439

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-DIOXIN

TABLE 3.6

SUMMARY OF TEST PIT DIOXIN RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1B of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	TP-11A	TP-11B
		SAMPLE ID	TP-11A/1-2	TP-11B/3-4
		DATE	12/14/94	12/14/94
		DEPTH (ft)	1.0	3.0
2,3,7,8-TCDD			<0.14	<0.049
2,3,7,8-TCDF			<0.18	<0.13
1,2,3,7,8-PeCDF			<0.30	<0.069
1,2,3,7,8-PeCDD			<0.15	<0.10
2,3,4,7,8-Pentachlorodibenzofuran			<0.33	<0.078
1,2,3,4,7,8-HxCDF			<0.17	<0.056 J
1,2,3,6,7,8-HxCDF			<0.14	<0.048 J
1,2,3,4,7,8-HxCDD			<0.15	<0.17 J
1,2,3,6,7,8-HxCDD			<0.11	<0.13 J
1,2,3,7,8,9-HxCDD			<0.13	<0.15 J
2,3,4,6,7,8-HxCDF			<0.17	<0.056 J
1,2,3,7,8,9-HxCDF			<0.20	<0.067 J
1,2,3,4,6,7,8-HpCDF			<0.090	<0.044 J
1,2,3,4,6,7,8-HpCDD			<0.22	<0.140 J
1,2,3,4,7,8,9-HpCDF			<0.11	<0.056 J
OCDD			1.4 J	<0.073 J
OCDF			<0.16	<0.088 J

302440

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-DIOXIN

SUMMARY OF TEST PIT SEVIN AND
MALATHION RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Sevin (ug/kg)	Malathion (ug/kg)	Rotenone (ug/kg)
TP-06B	12/13/94	5.0	2400000	120 *	2300
TP-06C	12/13/94	5.0	<250	<17	<200
TP-07A	12/13/94	3.0	1300	120 J	<600
TP-07B	12/13/94	4.0	<250	<17	<200
TP-07C	12/13/94	8.0	500	<17	<200
TP-08A	12/13/94	1.0	3100000	<33	<2000
TP-11A	12/14/94	1.0	2700	<33	<200
TP-11B	12/14/94	3.0	1000	<33	<200

302441

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-HRBCD2

SUMMARY OF TEST PIT METALS RESULTS
PHASE II SITE INVESTIGATION REPORTPulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
TP-06B	12/13/94	5.0	11	8.9	15.6	35.5 J
TP-06C	12/13/94	5.0	(1.5)	<0.23	11.8	4.4 J
TP-07A	12/13/94	3.0	147	<0.25	65.3	45.6 J
TP-07B	12/13/94	4.0	(2.9)	<0.23	79.5	3.3 J
TP-07C	12/13/94	8.0	<5	<0.99	14.5 B	9.3 R
TP-08A	12/13/94	1.0	5.9	<0.23	15.7	11.7 J
TP-11A	12/14/94	1.0	<1.2	<0.23	(0.51) B	5.4 J
TP-11B	12/14/94	3.0	1.6 B	<0.25	1.5 B	5.7 J

302442

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed
() = Less than Detection Limit
For RCL QNT-METALS

SUMMARY OF TEST PIT GENERAL PARAMETERS
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

SITE	DATE	DEPTH	Chromium (Hexavalent) (mg/kg)	Total Organic H alogen (mg/kg)	Total Solids (%)
TP-06B	12/13/94	5.0	<1 J	1400	76.8
TP-06C	12/13/94	5.0	<1 J	19	84
TP-07A	12/13/94	3.0	<1 J	520	80.6
TP-07B	12/13/94	4.0	<1 J	340	91.9
TP-07C	12/13/94	8.0	<1 J	<1	81
TP-08A	12/13/94	1.0	<1 J	150	89.2
TP-11A	12/14/94	1.0	<1 J	32	86.3
TP-11A	01/24/95	0.0	---	---	83.9
TP-11B	12/14/94	3.0	2 J	61	80.7

302443

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

TABLE 4

SUMMARY OF AIR SAMPLE TCL PESTICIDES
RESULTS

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site

Moorestown, New Jersey

CONSTITUENT	ng/Sample	SITE	AS-01
		SAMPLE ID	AS-01
		DATE	12/13/94
		DEPTH (ft)	0.0
alpha-BHC			160

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-PESTCD

302444

SUMMARY OF SEDIMENT TCL VOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Methylene chloride (ug/kg)	Acetone (ug/kg)	2-Butanone (ug/kg)	Tetrachloro ethene (ug/kg)	Chlorobenzene (ug/kg)	Xylene (total) (ug/kg)
SED-01	12/16/94	0.0	< 16	< 16 J	< 16	< 16	< 16	< 16
SED-02	12/16/94	0.0	< 16	48 B	(7) J	(5) J	(6) J	< 16
SED-03	12/16/94	0.0	< 12	< 20 J	< 12	(5) J	< 12	(9) J
SED-04	12/16/94	0.0	< 14	< 19 J	< 14 J	< 14	< 14	< 14
SED-05	12/16/94	0.0	< 21 J	< 21 J	(5) J	(6) J	< 21 J	< 21 J
SED-06	12/16/94	0.0	< 13	< 19 B	< 13 J	< 13	< 13	< 13
SED-07	12/16/94	0.0	< 45	< 65 B	(16) J	< 45	(13) J	< 45
STM-01	12/17/94	0.0	(7) J	(5) J	< 14	< 14	< 14	< 14
TR-05	12/21/94	0.5	< 14	< 14	< 14	(10) J	< 14	< 14

302446

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-VOC'S

TABLE 5.3

SUMMARY OF SEDIMENT TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SED-01	SED-02	SED-03	SED-04	SED-05	SED-06
		SAMPLE ID	SED-01	SED-02	SED-03	SED-04	SED-05	SED-06
		DATE	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94
		DEPTH (ft)	0.0	0.0	0.0	0.0	0.0	0.0
Phenol			(1700)	2500	(210) J	<470	<680 J	<440
4-Chloroaniline			8000	(420)	(100) J	<470	<680 J	<440
2,4,5-Trichlorophenol			<2600	<1100	(95) J	<470	<1600 J	<440
Acenaphthylene			<2600	<1100	<400	<470	<680 J	<440
Acenaphthene			<2600	<1100	<400	<470	<680 J	(25) J
Fluorene			<2600	<1100	<400	<470	<680 J	(28) J
N-Nitrosodiphenylamine			<2600	<1100	<400	<470	<680 J	<440
Hexachlorobenzene			(250) J	(140) J	(69) J	<470	<680 J	(63) J
Phenanthrene			<2600	<1100	<400	(40) J	(290) J	(160) J
Anthracene			<2600	<1100	<400	(37) J	<680 J	(41) J
Di-n-butylphthalate			<2600	(62) J	<400 J	<470 J	<680 J	(240) J
Fluoranthene			<2600	(120) J	(29) J	(48) J	(420) J	(280) J
Pyrene			<2600	(87) J	(22) J	(53) J	(380) J	(270) J
Butyl benzyl phthalate			<2600	<1100	<400	<470	<680	(28) J
Benzo(a)anthracene			<2600	(56) J	<400	<470	(220) J	(160) J
Chrysene			<2600	(67) J	(26) J	<470	(260) J	(160) J
bis(2-Ethylhexyl) phthalate			(430) J	(250) J	420	<470	(490) J	(350) J
Benzo(b)fluoranthene			<2600	(82) J	(67) J	(27) J	(320) J	(290) J
Benzo(k)fluoranthene			<2600	<1100	<400	(25) J	<680 J	(120) J
Benzo(a)pyrene			<2600	<1100	<400	<470	(180) J	(150) J
Indeno(1,2,3-cd)pyrene			<2600	<1100	<400	<470	(87) J	(97) J
Dibenzo(a,h)anthracene			<2600	<1100	<400	<470	<680 J	(32) J
Carbazole			<2600	<1100	<400	<470	<680 J	(33) J
Benzo(g,h,i)perylene			<2600	<1100	<400	<470	(77) J	(85) J
Pentachloronitrobenzene			<2600	<1100	<400	<470	<680 J	<440

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL QNT-SVOC'S

302447

TABLE 5.3

SUMMARY OF SEDIMENT TCL SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

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Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT (Units in ug/kg)	SITE	SED-07	STM-01	TR-05
	SAMPLE ID	SED-07	STORM-1	TRENCH 5
	DATE	12/16/94	12/17/94	12/21/94
	DEPTH (ft)	0.0	0.0	0.5
Phenol		<2200	<470	<9700
4-Chloroaniline		<2200	<470	<9700
2,4,5-Trichlorophenol		<2200	<1100	<23000
Acenaphthylene		(240) J	<470	<9700
Acenaphthene		<2200	<470	(1500) J
Fluorene		(170) J	<470	(1800) J
N-Nitrosodiphenylamine		<2200	<470	(2900) J
Hexachlorobenzene		(480) J	<470	(2100) J
Phenanthrene		(1100) J	(250) J	27000
Anthracene		(310) J	(43) J	(9000) J
Di-n-butylphthalate		<2200 J	<470	(510) JB
Fluoranthene		(1600) J	590	45000
Pyrene		(1100) J	(460) J	33000
Butyl benzyl phthalate		<2200	(50) J	(570) J
Benzo(a)anthracene		(820) J	(270) J	22000
Chrysene		(810) J	(320) J	20000
bis(2-Ethylhexyl) phthalate		(760) J	(200) J	(6700) J
Benzo(b)fluoranthene		(870) J	(440) J	24000
Benzo(k)fluoranthene		(440) J	(150) J	12000 J
Benzo(a)pyrene		(600) J	(260) J	18000 J
Indeno(1,2,3-cd)pyrene		(270) J	(130) J	(6400) J
Dibenzo(a,h)anthracene		<2200	<470	(2400) J
Carbazole		<2200	(38) J	(4600) J
Benzo(g,h,i)perylene		(220) J	(110) J	(5900) J
Pentachloronitrobenzene		<2200	<470	48000

302448

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL QNT-SVOC'S

TABLE 5.4

SUMMARY OF SEDIMENT TCL PESTICIDES
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SED-01	SED-02	SED-03	SED-04	SED-05	SED-06
		SAMPLE ID	SED-01	SED-02	SED-03	SED-04	SED-05	SED-06
		DATE	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94
		DEPTH (ft)	0.0	0.0	0.0	0.0	0.0	0.0
alpha-BHC			(310) J	<2800	550	(5.8) JN	(19) J	39
beta-BHC			<1300	<2800	(280) J	(2.8) JN	(13) J	28 J
delta-BHC			<1300	<2800	(260) J	<12	(9.3) J	<23
Lindane			(320) J	<2800	(310) J	(2.8) JN	(6.5) J	(3.9) J
Endosulfan I			<1300	<2800	<410	<12	<35	31
Dieldrin			<2600 J X	<5400 D	<7900 D	(23) JN	<670	280 J
4,4'-DDE			(710) JP	(470) JP	830 P	27 J	200	98 JN
Endrin			<2600	<5500	<810	<24	<69	(18) J
Endosulfan II			<2600	<5500	<810	<24	<69	<45
4,4'-DDD			9600 P	31000	3500 JN	630	2000 D	1700 D
4,4'-DDT			3800 D	120000 D	16000 D	190	720	3100 D
Methoxychlor			25000	<28000	45000	<120	<350	(14) J
gamma-Chlordane			<1300	<2800	<410	<12	<35	<23

302449

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL QNT-PESTCD

TABLE 5.4

SUMMARY OF SEDIMENT TCL PESTICIDES
PHASE II SITE INVESTIGATION REPORT

Page: 1B of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	SED-07	STM-01	TR-06
		SAMPLE ID	SED-07	STORM-1	TRENCH 5
		DATE	12/16/94	12/17/94	12/21/94
		DEPTH (ft)	0.0	0.0	0.5
alpha-BHC			750	(2.4) J	< 300
beta-BHC			210 J	(3) J	< 300
delta-BHC			< 110	< 24 J	< 300 J
Lindane			(30) JN	< 24	< 300
Endosulfan I			550 R	< 24	< 300
Dieldrin			3200 X	100 J	2100
4,4'-DDE			900 JN	650 J	1000 JN
Endrin			(150) J	< 470 D	< 400
Endosulfan II			< 220	< 48	4800 DU
4,4'-DDD			6700 D	1500 JD	660 JN
4,4'-DDT			6100 D	2900 D	40000 D
Methoxychlor			< 1100	(72) J	28000 D
gamma-Chlordane			< 110	(3.2) J	(11) J
<div>302450</div>					
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed () = Less than Detection Limit For RCL QNT-PESTCD					

TABLE 5.5

SUMMARY OF SEDIMENT DIOXIN RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 1A

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	TR-05
		SAMPLE ID	TRENCH 5
		DATE	12/21/94
		DEPTH (ft)	0.5
2,3,7,8-TCDD			<0.76 R
2,3,7,8-TCDF			<1.8 R
1,2,3,7,8-PeCDF			<2.0 R
1,2,3,7,8-PeCDD			<1.2 R
2,3,4,7,8-Pentachlorodibenzofuran			<2.3 R
1,2,3,4,7,8-HxCDF			<0.14 R
1,2,3,6,7,8-HxCDF			<0.12 R
1,2,3,4,7,8-HxCDD			<0.59
1,2,3,6,7,8-HxCDD			<0.47
1,2,3,7,8,9-HxCDD			<0.51
2,3,4,6,7,8-HxCDF			0 R
1,2,3,7,8,9-HxCDF			<0.17 R
1,2,3,4,6,7,8-HpCDF			<0.020
1,2,3,4,6,7,8-HpCDD			<0.18
1,2,3,4,7,8,9-HpCDF			8.7
OCDD			0.12
OCDF			<0.073

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-DIOXIN

302451

TABLE 5.6

SUMMARY OF SEDIMENT SEVIN, MALATHION,
AND ROTENONE RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Sevin (ug/kg)	Malathion (ug/kg)	Rotenone (ug/kg)
SED-01	12/16/94	0.0	490	160	---
SED-02	12/16/94	0.0	540	<33	---
SED-03	12/16/94	0.0	<250	440	---
SED-04	12/16/94	0.0	<250	<33	---
SED-05	12/16/94	0.0	690	<33	---
SED-06	12/16/94	0.0	<250	<33	---
SED-07	12/16/94	0.0	440	<33	---
STM-01	12/17/94	0.0	9600	<33	---
TR-05	12/21/94	0.5	3600 J	170	30000 J

ies represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

TABLE 5.7
SUMMARY OF SEDIMENT METALS RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 1A

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	DEPTH	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)
SED-01	12/16/94	0.0	9.3	<0.94	18.4	39.2
SED-02	12/16/94	0.0	6.4	<1	12.8	52.1
SED-03	12/16/94	0.0	6.2	<0.72	10	23.9
SED-04	12/16/94	0.0	7.3	<0.86	19.6	13.5
SED-05	12/16/94	0.0	27.4 J	2.5 J	26.5 J	136 J
SED-06	12/16/94	0.0	2.6	<0.8	8.6	32.6
SED-07	12/16/94	0.0	4.8	<0.94	17.7	50.1
STM-01	12/17/94	0.0	9.1	4.2	21.5	127 J
TR-05	12/21/94	0.5	9.2	56.7	90.2	1020 J

Jes represent total concentrations unless noted < =Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-METALS

302453

TABLE 5.8
SUMMARY OF SEDIMENT GENERAL PARAMETERS
RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

Page: 1A of 1A

SITE	DATE	DEPTH	Total Solids (%)
SED-01	12/16/94	0.0	61.1
SED-02	12/16/94	0.0	73
SED-03	12/16/94	0.0	80.2
SED-04	12/16/94	0.0	69.8
SED-05	12/16/94	0.0	42.5
SED-06	12/16/94	0.0	75.6
SED-07	12/16/94	0.0	70.3
STM-01	12/17/94	0.0	71.1
TR-05	12/21/94	0.5	69.5

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-GENPRM

302454

TABLE 6

SOIL SAMPLE GEOTECHNICAL RESULTS

Soil Sampling Location	USCS Classification	Moisture Content (%)	Specific Gravity	Total Organic Carbon	Dry Density (lbs/ft³)	Coefficient of Permeability (cm/sec)	Soil pH
SH-01/MW-10/0-2	CL	1.84	2.69	1.84	96.8	1.70E-06	5.80
SH-02/TP-11/0-2	SM	52.28	2.53	52.28	99.1	1.20E-07	2.70
SH-03/MW-09/2-6	SC-SM	2.24	2.65	2.24	102.9	3.30E-06	4.30
SH-04/MW-07/1-3	SM	1.75	2.67	1.75	111.6	4.20E-07	5.30
SH-05/MW-07/14-15.5	CH	6.14	2.70	6.14	85.6	9.10E-09	5.00
SH-06/SB-07/0-2	SM	4.00	2.60	4.00	102.2	9.70E-08	3.50

Notes: 1) lbs/ft³ indicates pounds per cubic foot
2) cm/sec indicates centimeters per second

302455

TABLE 7

COMPOSITE SAMPLE DIOXIN RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	DIOX-03	DIOX-04	DIOX-05	DIOX-06	DIOX-07	DIOX-08
		SAMPLE ID	DIOX-3-A	DIOX-4-A	DIOX-1-B	DIOX-2-B	DIOX-3-B	DIOX-1-C
		DATE	12/17/94	12/17/94	12/17/94	12/17/94	12/17/94	12/17/94
		DEPTH (ft)	0.5	0.5	0.5	0.5	0.5	0.5
2,3,7,8-TCDD			<0.20	<0.13	<0.10	<0.086	<0.036 J	<0.24
2,3,7,8-TCDF			<0.32	<0.26	<0.099	<0.13	<0.12 J	<0.13
1,2,3,7,8-PeCDF			<0.21	<0.26	<0.090	<0.078	<0.081 J	<0.12
1,2,3,7,8-PeCDD			<0.22	<0.30	<0.13	<0.11	<0.078 J	<0.17
2,3,4,7,8-Pentachlorodibenzofuran			<0.23	<0.29	<0.10	<0.087	<0.090 J	<0.14
1,2,3,4,7,8-HxCDF			<0.10	<0.063	<0.066	<0.057	<0.039 J	<0.073
1,2,3,6,7,8-HxCDF			<0.088	<0.054	<0.057	<0.049	<0.034 J	<0.064
1,2,3,4,7,8-HxCDD			<0.15	<0.12	<0.093	<0.089	<0.085 J	<0.13
1,2,3,6,7,8-HxCDD			<0.13	<0.10	<0.077	<0.074	<0.071 J	<0.11
1,2,3,7,8,9-HxCDD			<0.13	<0.11	<0.083	<0.079	<0.076 J	<0.12
2,3,4,6,7,8-HxCDF			<0.10	<0.063	<0.066	<0.057	<0.040 J	<0.074
1,2,3,7,8,9-HxCDF			<0.12	<0.076	<0.080	<0.069	<0.048 J	<0.089
1,2,3,4,6,7,8-HpCDF			<0.13	<0.10	<0.054	<0.046	<0.040 J	<0.089
1,2,3,4,6,7,8-HpCDD			<0.28	<0.10	<0.13	<0.093	<0.12 J	<0.28
1,2,3,4,7,8,9-HpCDF			<0.17	<0.13	<0.070	<0.060	<0.052 J	<0.12
OCDD			6.9	4.7 J	11	1.1 J	1.1 J	13
OCDF			<0.16	<0.18	<0.11	<0.088	<0.076	<0.098

302456

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-DIOXIN

TABLE 7

COMPOSITE SAMPLE DIOXIN RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1B of 1B

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/kg)	SITE	DIOX-09	DIOX-10
		SAMPLE ID	DIOX-2-C	DIOX-3-C
		DATE	12/17/94	12/17/94
		DEPTH (ft)	0.5	0.5
2,3,7,8-TCDD			<0.051	<0.25
2,3,7,8-TCDF			<0.17	<0.15
1,2,3,7,8-PeCDF			<0.12	<0.14
1,2,3,7,8-PeCDD			<0.14	<0.17
2,3,4,7,8-Pentachlorodibenzofuran			<0.13	<0.15
1,2,3,4,7,8-HxCDF			<0.064	<0.077
1,2,3,6,7,8-HxCDF			<0.055	<0.067
1,2,3,4,7,8-HxCDD			<0.12	<0.15
1,2,3,6,7,8-HxCDD			<0.10	<0.12
1,2,3,7,8,9-HxCDD			<0.11	<0.13
2,3,4,6,7,8-HxCDF			<0.064	<0.078
1,2,3,7,8,9-HxCDF			<0.077	<0.094
1,2,3,4,6,7,8-HpCDF			<0.074	<0.069
1,2,3,4,6,7,8-HpCDD			<0.32	<0.12
1,2,3,4,7,8,9-HpCDF			<0.096	<0.089
OCDD			12	14
OCDF			<0.14	<0.11
302457 Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed For RCL QNT-DIOXIN				

TABLE 8
PIEZOMETER / MONITORING WELL CONSTRUCTION DETAILS

Well I.D.	Northing	Easting	Total Well Depth (ft-TOC)	Elevation of Bottom of Well (ft-msl)	Elevation of Ground Surface (ft-msl)	Elevation of Top of Casing (ft-msl)	Stick -up (ft)
MW-01	412782.0054	359439.2557	21.35	45.55	66.90	69.05	2.15
MW-02	412518.3209	359240.3734	19.70	49.80	69.50	71.39	1.89
MW-03	412945.0258	359217.6993	21.60	46.80	68.40	70.59	2.19
MW-04	412657.1532	358816.5186	17.05	45.15	62.20	64.16	1.96
MW-05	412794.2151	358645.4942	15.75	43.15	58.90	61.36	2.46
MW-06	413153.5364	358888.2701	12.80	52.80	65.40	67.42	2.02
MW-07	413031.1090	358847.3405	14.30	49.30	63.60	66.01	2.41
MW-08	413187.1364	358487.0762	10.30	45.80	56.10	57.32	1.22
MW-09	412532.8077	358996.0623	15.30	55.30	70.60	72.31	1.71
MW-10	412218.5996	359364.6707	13.15	54.05	67.20	69.23	2.03
PZ-01	413031.7643	358345.4788	29.35	23.95	53.30	56.80	3.50
PZ-02	413197.9055	358503.0729	8.50	47.70	56.20	56.91	0.71
PZ-03	413374.9221	358684.8897	9.65	49.05	58.70	59.45	0.75
PZ-04	412824.7974	358597.1243	9.50	49.30	58.80	62.28	3.48
PZ-05	413040.2951	358756.5655	9.50	53.20	62.70	63.31	0.61
PZ-06	413134.1971	358942.3714	9.15	55.95	65.10	65.75	0.65
PZ-07	413034.6985	358913.6541	9.00	55.60	64.60	65.54	0.94
PZ-08	412718.9165	358836.6140	9.30	54.50	63.80	64.27	0.47
PZ-09	412752.1260	358845.7340	9.30	54.40	63.70	64.33	0.63
PZ-10	412872.1604	358882.6025	9.00	54.30	63.30	63.74	0.44
PZ-11	412942.2203	358977.9071	9.40	55.20	64.60	66.82	2.22
PZ-12	413087.8483	359080.1964	9.00	56.20	65.20	65.63	0.43
PZ-13	412592.2989	358991.6758	13.40	55.70	69.10	70.11	1.01
PZ-14	412763.5949	359138.1568	11.50	57.70	69.20	71.24	2.04
PZ-15	412872.9425	359310.2660	13.45	55.55	69.00	70.36	1.36
PZ-16	412174.6816	359273.9208	11.05	53.95	65.00	66.58	1.58
PZ-17	412329.3693	359421.1787	14.55	53.25	67.80	70.65	2.85
PZ-18	412180.6775	359474.9750	9.55	55.15	64.70	65.43	0.73
PZ-19	411983.7565	359501.1908	7.10	51.30	58.40	60.50	2.10
PZ-20	412079.1969	359714.8544	9.05	49.75	58.80	60.43	1.63
PZ-21	411884.0734	359601.0132	6.45	48.95	55.40	57.54	2.14

Notes: 1) ft-msl indicates feet above mean sea level
2) ft-TOC indicates feet below top of casing

302458

TABLE 9

GROUNDWATER POTENTIOMETRIC SURFACE ELEVATION MEASUREMENTS

Well Designation	Elevation of Ground ft-msl	Elevation of Top of Casing ft-msl	Stick-Up ft	DTW / 1-4-95 ft-BTOC	GW Elevation 1-4-95 ft-msl	DTW / 1-10-95 ft-BTOC	GW Elevation 1-10-95 ft-msl	DTW / 1-25-95 ft-BTOC	GW Elevation 1-25-95 ft-msl	DTW / 2-10-95 ft-BTOC	GW Elevation 2-10-95 ft-msl	DTW / 2-3-95 ft-BTOC	GW Elevation 2-3-95 ft-msl
MW-01	66.90	69.05	2.15	8.25	60.80	8.20	60.85	8.05	61.00	8.05	61.00	7.80	61.45
MW-02	69.50	71.39	1.89	11.55	59.84	11.50	59.89	11.05	60.34	11.05	60.34	10.45	60.94
MW-03	68.40	70.59	2.19	10.15	60.44	9.70	60.89	9.35	61.24	9.05	61.54	8.90	61.69
MW-04	62.20	64.16	1.96	5.10	59.06	4.85	59.31	4.75	59.41	4.90	59.26	4.10	60.06
MW-05	65.40	67.42	2.02	6.82	60.80	5.90	61.52	5.90	61.52	6.55	60.87	5.80	61.82
MW-06	58.90	61.36	2.46	4.00	57.36	4.05	57.31	4.05	57.31	4.00	57.36	3.85	57.51
MW-07	63.80	66.01	2.41	-	-	-	-	4.55	61.46	5.37	60.64	4.30	61.71
MW-08	56.10	57.32	1.22	-	-	-	-	2.80	64.72	3.61	63.71	2.15	65.17
MW-09	70.80	72.31	1.71	-	-	-	-	12.10	60.21	12.15	60.16	11.70	60.61
MW-10	67.20	69.23	2.03	-	-	-	-	10.10	59.13	10.55	58.68	9.85	59.58
PZ-01	53.30	56.80	3.50	5.70	51.10	4.85	51.95	5.00	51.80	5.82	50.98	4.70	52.10
PZ-02	56.20	56.91	0.71	3.95	52.98	1.50	55.41	1.75	55.16	3.10	53.81	1.80	55.31
PZ-03	58.70	59.45	0.75	5.80	53.85	3.20	56.25	3.80	55.85	4.85	54.80	3.35	56.10
PZ-04	58.80	62.28	3.48	5.25	57.03	4.95	57.33	5.05	57.23	5.28	57.00	5.00	57.28
PZ-05	62.70	63.31	0.61	4.90	58.41	2.25	61.06	2.80	60.71	4.42	58.89	2.80	60.71
PZ-06	65.10	65.75	0.65	5.85	60.10	4.05	61.70	3.95	61.80	4.75	61.00	3.80	62.25
PZ-07	64.80	65.54	0.94	4.80	60.94	4.05	61.49	3.80	61.74		65.54	3.80	62.04
PZ-08	63.80	64.27	0.47	4.30	59.97	3.90	60.37	3.70	60.57	4.10	60.17	3.45	60.82
PZ-09	63.70	64.33	0.63	4.45	59.88	4.00	60.33	3.80	60.53	4.20	60.13	3.80	60.73
PZ-10	63.30	63.74	0.44	3.25	60.49	2.70	61.04	2.50	61.24	2.96	60.78	2.35	61.39
PZ-11	64.80	66.82	2.22	5.90	60.92	5.45	61.37	5.00	61.82	5.67	61.15	4.55	62.27
PZ-12	65.20	65.83	0.43	4.50	61.13	4.05	61.58	3.80	61.83	4.28	61.35	3.85	61.98
PZ-13	69.10	70.11	1.01	10.20	59.91	9.90	60.21	9.45	60.66	9.75	60.36	9.25	60.86
PZ-14	69.20	71.24	2.04	10.80	60.64	10.20	61.04	9.85	61.39	10.25	60.99	9.85	61.59
PZ-15	69.00	70.36	1.36	9.40	60.96	9.00	61.36	8.65	61.71	8.85	61.71	8.55	61.81
PZ-16	65.00	66.58	1.58	8.50	58.08	7.80	58.78	7.20	59.38	6.75	59.83	6.85	59.73
PZ-17	67.80	70.65	2.85	12.45	58.20	11.85	58.80	11.20	59.45	11.70	58.95	10.95	59.70
PZ-18	64.70	65.43	0.73	7.40	58.03	6.75	58.68	6.25	59.18	6.85	58.58	6.00	59.43
PZ-19	58.40	60.50	2.10	4.06	56.44	3.10	57.40	2.95	57.55	2.80	57.90	3.85	56.85
PZ-20	58.80	60.43	1.63	3.80	56.63	3.30	57.13	3.85	56.78	3.90	56.53	3.40	57.03
PZ-21	55.40	57.54	2.14	2.75	54.79	2.15	55.39	2.20	55.34	2.85	54.89	2.20	55.34

Notes: 1) ft-msl indicates feet above mean sea level
2) ft-BTOC indicates feet below top of casing
3) DTW indicates depth to water
4) "-" indicates no measurement taken

302459

TABLE 9

GROUNDWATER POTENTIOMETRIC SURFACE
ELEVATIONS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	MP ELEVATION feet ⁽²⁾	TIME	DEPTH TO WATER feet	FLOATING PRODUCT THICKNESS feet	WATER ELEV. feet ⁽²⁾	△ WATER ELEV. ⁽¹⁾ feet	EQUIV. FRESH WATER HEAD feet ⁽²⁾
MW-01	01/04/95	69.05	00:00	8.25	.00	60.80	NA	60.80
MW-01	01/10/95	69.05	00:00	8.20	.00	60.85	.05	60.85
MW-01	01/26/95	69.05	00:00	8.05	.00	61.00	.15	61.00
MW-01	02/10/95	69.05	00:00	8.05	.00	61.00	.00	61.00
MW-02	01/04/95	71.39	00:00	11.55	.00	59.84	NA	59.84
MW-02	01/10/95	71.39	00:00	11.50	.00	59.89	.05	59.89
MW-02	01/26/95	71.39	00:00	11.05	.00	60.34	.45	60.34
MW-02	02/10/95	71.39	00:00	11.05	.00	60.34	.00	60.34
MW-03	01/04/95	70.59	00:00	10.15	.00	60.44	NA	60.44
MW-03	01/10/95	70.59	00:00	9.70	.00	60.89	.45	60.89
MW-03	01/26/95	70.59	00:00	9.35	.00	61.24	.35	61.24
MW-03	02/10/95	70.59	00:00	9.50	.00	61.09	-.15	61.09
MW-04	01/04/95	64.16	00:00	5.10	.00	59.06	NA	59.06
MW-04	01/10/95	64.16	00:00	4.85	.00	59.31	.25	59.31
MW-04	01/26/95	64.16	00:00	4.75	.00	59.41	.10	59.41
MW-04	02/10/95	64.16	00:00	4.90	.00	59.26	-.15	59.26
MW-05	01/04/95	67.42	00:00	6.82	.00	60.60	NA	60.60
MW-05	01/10/95	67.42	00:00	5.90	.00	61.52	.92	61.52
MW-05	01/26/95	67.42	00:00	5.90	.00	61.52	.00	61.52
MW-05	02/10/95	67.42	00:00	6.55	.00	60.87	-.65	60.87
MW-06	01/04/95	61.36	00:00	4.00	.00	57.36	NA	57.36
MW-06	01/10/95	61.36	00:00	4.05	.00	57.31	-.05	57.31
MW-06	01/26/95	61.36	00:00	4.05	.00	57.31	.00	57.31
MW-06	02/10/95	61.36	00:00	4.00	.00	57.36	.05	57.36
MW-07	01/26/95	66.01	00:00	4.55	.00	61.46	NA	61.46
MW-07	02/10/95	66.01	00:00	5.37	.00	60.64	-.82	60.64
MW-08	01/26/95	57.32	00:00	2.60	.00	54.72	NA	54.72
MW-08	02/10/95	57.32	00:00	3.61	.00	53.71	-1.01	53.71

1) Change in Water Elevation since last measurement

2) Measurements Based on Mean Sea Level

D = Dry NA = Not Available

302460

TABLE 9
GROUNDWATER POTENTIOMETRIC SURFACE
ELEVATIONS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

Page: 2 of 4

SITE	DATE	MP ELEVATION feet ⁽²⁾	TIME	DEPTH TO WATER feet	FLOATING PRODUCT THICKNESS feet	WATER ELEV. feet ⁽²⁾	△ WATER ELEV. ⁽¹⁾ feet	EQUIV. FRESH WATER HEAD feet ⁽²⁾
MW-09	01/26/95	72.31	00:00	12.10	.00	60.21	NA	60.21
MW-09	02/10/95	72.31	00:00	12.15	.00	60.16	-.05	60.16
MW-10	01/26/95	69.23	00:00	10.10	.00	59.13	NA	59.13
MW-10	02/10/95	69.23	00:00	10.55	.00	58.68	-.45	58.68
PZ-01	01/04/95	56.80	00:00	5.70	.00	51.10	NA	51.10
PZ-01	01/10/95	56.80	00:00	4.85	.00	51.95	.85	51.95
PZ-01	01/26/95	56.80	00:00	5.00	.00	51.80	-.15	51.80
PZ-01	02/10/95	56.80	00:00	5.82	.00	50.98	-.82	50.98
PZ-02	01/04/95	56.91	00:00	3.95	.00	52.96	NA	52.96
PZ-02	01/10/95	56.91	00:00	1.50	.00	55.41	2.45	55.41
PZ-02	01/26/95	56.91	00:00	1.75	.00	55.16	-.25	55.16
PZ-02	02/10/95	56.91	00:00	3.10	.00	53.81	-1.35	53.81
PZ-03	01/04/95	59.45	00:00	5.60	.00	53.85	NA	53.85
PZ-03	01/10/95	59.45	00:00	3.20	.00	56.25	2.40	56.25
PZ-03	01/26/95	59.45	00:00	3.60	.00	55.85	-.40	55.85
PZ-03	02/10/95	59.45	00:00	4.85	.00	54.60	-1.25	54.60
PZ-04	01/04/95	62.28	00:00	5.25	.00	57.03	NA	57.03
PZ-04	01/10/95	62.28	00:00	4.95	.00	57.33	.30	57.33
PZ-04	01/26/95	62.28	00:00	5.05	.00	57.23	-.10	57.23
PZ-04	02/10/95	62.28	00:00	5.28	.00	57.00	-.23	57.00
PZ-05	01/04/95	63.31	00:00	4.90	.00	58.41	NA	58.41
PZ-05	01/10/95	63.31	00:00	2.25	.00	61.06	2.65	61.06
PZ-05	01/26/95	63.31	00:00	2.60	.00	60.71	-.35	60.71
PZ-05	02/10/95	63.31	00:00	4.42	.00	58.89	-1.82	58.89
PZ-06	01/04/95	65.75	00:00	5.65	.00	60.10	NA	60.10
PZ-06	01/10/95	65.75	00:00	4.05	.00	61.70	1.60	61.70
PZ-06	01/26/95	65.75	00:00	3.95	.00	61.80	.10	61.80
PZ-06	02/10/95	65.75	00:00	4.75	.00	61.00	-.80	61.00

1) Change in Water Elevation since last measurement

D = Dry NA = Not Available

2) Measurements Based on Mean Sea Level

302461

TABLE 9
GROUNDWATER POTENTIOMETRIC SURFACE
ELEVATIONS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

Page: 3 of 4

SITE	DATE	MP ELEVATION feet ⁽²⁾	TIME	DEPTH TO WATER feet	FLOATING PRODUCT THICKNESS feet	WATER ELEV. feet ⁽²⁾	△ WATER ELEV. ⁽¹⁾ feet	EQUIV. FRESH WATER HEAD feet ⁽²⁾
PZ-07	01/04/95	65.54	00:00	4.60	.00	60.94	NA	60.94
PZ-07	01/10/95	65.54	00:00	4.05	.00	61.49	.55	61.49
PZ-07	01/26/95	65.54	00:00	3.80	.00	61.74	.25	61.74
PZ-08	01/04/95	64.27	00:00	4.30	.00	59.97	NA	59.97
PZ-08	01/10/95	64.27	00:00	3.90	.00	60.37	.40	60.37
PZ-08	02/10/95	64.27	00:00	4.10	.00	60.17	-.20	60.17
PZ-09	01/04/95	64.33	00:00	4.45	.00	59.88	NA	59.88
PZ-09	01/10/95	64.33	00:00	4.00	.00	60.33	.45	60.33
PZ-09	01/26/95	64.33	00:00	3.80	.00	60.53	.20	60.53
PZ-09	02/10/95	64.33	00:00	4.20	.00	60.13	-.40	60.13
PZ-10	01/04/95	63.74	00:00	3.25	.00	60.49	NA	60.49
PZ-10	01/10/95	63.74	00:00	2.70	.00	61.04	.55	61.04
PZ-10	01/26/95	63.74	00:00	2.50	.00	61.24	.20	61.24
PZ-10	02/10/95	63.74	00:00	2.98	.00	60.76	-.48	60.76
PZ-11	01/04/95	66.82	00:00	5.90	.00	60.92	NA	60.92
PZ-11	01/10/95	66.82	00:00	5.45	.00	61.37	.45	61.37
PZ-11	01/26/95	66.82	00:00	5.00	.00	61.82	.45	61.82
PZ-11	02/10/95	66.82	00:00	5.67	.00	61.15	-.67	61.15
PZ-12	01/04/95	65.63	00:00	4.50	.00	61.13	NA	61.13
PZ-12	01/10/95	65.63	00:00	4.05	.00	61.58	.45	61.58
PZ-12	01/26/95	65.63	00:00	3.80	.00	61.83	.25	61.83
PZ-12	02/10/95	65.63	00:00	4.28	.00	61.35	-.48	61.35
PZ-13	01/04/95	70.11	00:00	10.20	.00	59.91	NA	59.91
PZ-13	01/10/95	70.11	00:00	9.90	.00	60.21	.30	60.21
PZ-13	01/26/95	70.11	00:00	9.45	.00	60.66	.45	60.66
PZ-13	02/10/95	70.11	00:00	9.75	.00	60.36	-.30	60.36
PZ-14	01/04/95	71.24	00:00	10.60	.00	60.64	NA	60.64
PZ-14	01/10/95	71.24	00:00	10.20	.00	61.04	.40	61.04
PZ-14	01/26/95	71.24	00:00	9.85	.00	61.39	.35	61.39

1) Change in Water Elevation since last measurement

D = Dry NA = Not Available

2) Measurements Based on Mean Sea Level

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TABLE 9
GROUNDWATER POTENTIOMETRIC SURFACE
ELEVATIONS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

Page: 4 of 4

SITE	DATE	MP ELEVATION feet ⁽²⁾	TIME	DEPTH TO WATER feet	FLOATING PRODUCT THICKNESS feet	WATER ELEV. feet ⁽²⁾	△ WATER ELEV. ⁽¹⁾ feet	EQUIV. FRESH WATER HEAD feet ⁽²⁾
PZ-14	02/10/95	71.24	00:00	10.25	.00	60.99	-.40	60.99
PZ-15	01/04/95	70.36	00:00	9.40	.00	60.96	NA	60.96
PZ-15	01/10/95	70.36	00:00	9.00	.00	61.36	.40	61.36
PZ-15	01/26/95	70.36	00:00	8.65	.00	61.71	.35	61.71
PZ-15	02/10/95	70.36	00:00	8.65	.00	61.71	.00	61.71
PZ-16	01/04/95	66.58	00:00	8.50	.00	58.08	NA	58.08
PZ-16	01/10/95	66.58	00:00	7.80	.00	58.78	.70	58.78
PZ-16	01/26/95	66.58	00:00	7.20	.00	59.38	.60	59.38
PZ-16	02/10/95	66.58	00:00	6.75	.00	59.83	.45	59.83
PZ-17	01/04/95	70.65	00:00	12.45	.00	58.20	NA	58.20
PZ-17	01/10/95	70.65	00:00	11.85	.00	58.80	.60	58.80
Z-17	01/26/95	70.65	00:00	11.20	.00	59.45	.65	59.45
PZ-17	02/10/95	70.65	00:00	11.70	.00	58.95	-.50	58.95
PZ-18	01/04/95	65.43	00:00	7.40	.00	58.03	NA	58.03
PZ-18	01/10/95	65.43	00:00	6.75	.00	58.68	.65	58.68
PZ-18	01/26/95	65.43	00:00	6.25	.00	59.18	.50	59.18
PZ-18	02/10/95	65.43	00:00	6.85	.00	58.58	-.60	58.58
PZ-19	01/04/95	60.50	00:00	4.06	.00	56.44	NA	56.44
PZ-19	01/10/95	60.50	00:00	3.10	.00	57.40	.96	57.40
PZ-19	01/26/95	60.50	00:00	2.95	.00	57.55	.15	57.55
PZ-19	02/10/95	60.50	00:00	2.60	.00	57.90	.35	57.90
PZ-20	01/04/95	60.43	00:00	3.80	.00	56.63	NA	56.63
PZ-20	01/10/95	60.43	00:00	3.30	.00	57.13	.50	57.13
PZ-20	01/26/95	60.43	00:00	3.65	.00	56.78	-.35	56.78
PZ-20	02/10/95	60.43	00:00	3.90	.00	56.53	-.25	56.53
PZ-21	01/04/95	57.54	00:00	2.75	.00	54.79	NA	54.79
PZ-21	01/10/95	57.54	00:00	2.15	.00	55.39	.60	55.39
PZ-21	01/26/95	57.54	00:00	2.20	.00	55.34	-.05	55.34
PZ-21	02/10/95	57.54	00:00	2.65	.00	54.89	-.45	54.89

1) Change in Water Elevation since last measurement

D = Dry NA = Not Available

2) Measurements Based on Mean Sea Level

302463

TABLE 10
SLUG TEST RESULTS

MONITORING WELL	STATIC WATER ELEVATION (ft-msl)	TOTAL DEPTH (ft-msl)	SATURATED THICKNESS (ft)	HYDRAULIC CONDUCTIVITY, k (ft/min)	HYDRAULIC CONDUCTIVITY, k (cm/sec)
MW-01	61.00	21.35	16.30	0.0006641	0.0003374
MW-02	60.34	19.70	9.34	0.0011953	0.0006072
MW-03	61.09	21.60	16.19	0.0049336	0.0025063
MW-04	59.26	17.05	12.26	0.0000396	0.0000201
MW-05	54.81	15.75	10.31	0.0043749	0.0022224
MW-06	63.42	12.80	8.62	0.0001116	0.0000567
MW-07	60.64	14.30	10.04	0.0004379	0.0002224
MW-08	53.71	10.30	4.11	0.0004979	0.0002529
MW-09	60.16	15.30	4.56	0.0003483	0.0001769
MW-10	58.68	13.15	2.48	0.0001397	0.0000709
				GEOMETRIC MEAN = 0.000249037	

Notes: 1) ft-msl indicates feet above mean sea level
 2) ft/min indicates feet per minute
 3) cm/sec indicates centimeters per second

302464

SURFACE WATER/GROUNDWATER VOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	Methylene chloride (ug/l)	Acetone (ug/l)	Chloroform (ug/l)	Carbon tetrachloride (ug/l)	Benzene (ug/l)	Tetrachloro ethene (ug/l)	Chlorobenzene (ug/l)	Ethylbenzene (ug/l)
MW-01	02/08/95	<80	1100 J	<80	<80	<80	<80	<80	<80
MW-02	02/08/95	<60	870 J	<60	<60	<60	<60	<60	<60
MW-03	02/08/95	<80	1200 J	<80	<80	<80	<80	<80	<80
MW-04	02/08/95	<10	68 J	<10	<10	<10	<10	<10	<10
MW-05	02/09/95	<10	230 J	<10	<10	(4) J	<10	(5) J	10 J
MW-06	02/09/95	<10	24 UJ	<10	<10	(3) J	11	(2) J	<10
MW-07	02/09/95	<10	14 UJ	<10	<10	15	(9) J	49	11
MW-08	02/09/95	<10	<10	<10	<10	<10	<10	<10	<10
MW-09	02/09/95	<10	<10	(3) J	<10	<10	140	<10	<10
MW-10	02/09/95	<10	<10	15	10	<10	25	<10	<10
SW-01	12/16/94	<10	<10	<10	<10	<10	<10	<10	<10
SW-02	12/16/94	<10	16	<10	<10	(2) J	<10	<10	<10
SW-03	12/16/94	<10	(8) J	<10	<10	<10	<10	<10	(7) J
SW-04	12/16/94	(2) J	<10	<10	<10	<10	(4) J	<10	<10
SW-05	12/16/94	<10	<10	<10	<10	<10	<10	<10	<10
SW-06	12/16/94	<10	<10	<10	<10	<10	<10	<10	<10
SW-07	12/16/94	<10	<10	<10	<10	<10	<10	<10	<10

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-VOC'S

302465

SURFACE WATER/GROUNDWATER VOCs RESULTS
PHASE II SITE INVESTIGATION REPORTPulverizing Services Site
Moorestown, New Jersey

SITE	DATE	Xylene (total) (ug/l)
MW-01	02/08/95	< 80
MW-02	02/08/95	(16) J
MW-03	02/08/95	< 80
MW-04	02/08/95	< 10
MW-05	02/09/95	86
MW-06	02/09/95	< 10
MW-07	02/09/95	11
MW-08	02/09/95	< 10
MW-09	02/09/95	< 10
MW-10	02/09/95	< 10
SW-01	12/16/94	< 10
SW-02	12/16/94	< 10
SW-03	12/16/94	92
SW-04	12/16/94	< 10
SW-05	12/16/94	< 10
SW-06	12/16/94	< 10
SW-07	12/16/94	< 10

302466

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-VOC'S

TABLE 11.2

SURFACE WATER/GROUNDWATER SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1A of 2C

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/l)	SITE	MW-01	MW-02	MW-03	MW-04	MW-05	MW-06
		SAMPLE ID	MW-01	MW-02	MW-03	MW-04	MW-05	MW-06
		DATE	02/08/95	02/08/95	02/08/95	02/08/95	02/09/95	02/09/95
Phenol			<10	<70	<10	<10	<10	<10
1,4-Dichlorobenzene			<10	<70	<10	<10	(1) R	<10
1,2-Dichlorobenzene			<10	<70	<10	<10	(1) R	<10
2-Methylphenol			<10	<70	<10	<10	<10	<10
4-Methylphenol			<10	<70	<10	<10	<10	<10
1,2,4-Trichlorobenzene			<10	<70	<10	<10	(1) R	<10
Naphthalene			<10	170	<10	<10	(2) J	<10
2-Methylnaphthalene			<10	390	<10	<10	(1) J	<10
2,4,6-Trichlorophenol			<10	<70	<10	<10	(0.6) J	<10
2,4,5-Trichlorophenol			<25	<170	<25	<25	<25	<25
Acenaphthylene			<10	<70	<10	<10	<10	<10
Acenaphthene			<10	(7) J	<10	<10	<10	<10
Dibenzofuran			<25	<170	<25	<25	<25	<25
Diethylphthalate			<10	<70	<10	<10	24	<10
Phenanthrene			<10	<70	<10	<10	<10	<10
Anthracene			<10	<70	<10	<10	<10	<10
Di-n-butylphthalate			<10	<70	<10	<10	<10	<10
Fluoranthene			<10	<70	<10	<10	<10	<10
Pyrene			<10 J	<70 J	<10 J	<10 J	<10 J	<10 J
Benzo(a)anthracene			<10	<70	<10	<10	<10	<10
Chrysene			<10	<70	<10	<10	<10	<10
bis(2-Ethylhexyl) phthalate			<10	<70	<10	<10	<10	<10
Benzo(b)fluoranthene			<10	<70	<10	<10	<10	<10
Benzo(k)fluoranthene			<10	<70	<10	<10	<10	<10
Benzo(a)pyrene			<10	<70	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene			<10 J	<70 J	<10 J	<10 J	<10 J	<10 J
Carbazole			<10	<70	<10	<10	<10	<10

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(I) = Less than Detection Limit

For RCL QNT-SVOC'S

302467

SURFACE WATER/GROUNDWATER SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

		SITE	MW-01	MW-02	MW-03	MW-04	MW-05	MW-06
		SAMPLE ID	MW-01	MW-02	MW-03	MW-04	MW-05	MW-06
CONSTITUENT	(Units in ug/l)	DATE	02/08/95	02/08/95	02/08/95	02/08/95	02/09/95	02/09/95
Benzo(g,h,i)perylene			< 10	< 70	< 10	< 10	< 10	< 10
<div>302468</div>								
Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed For RCL QNT-SVOC'S								

TABLE 11.2

SURFACE WATER/GROUNDWATER SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1B of 2C

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/l)	SITE	MW-07	MW-08	MW-09	MW-10	SW-01	SW-02
		SAMPLE ID	MW-07	MW-08	MW-09	MW-10	SW-01	SW-02
		DATE	02/09/95	02/09/95	02/09/95	02/09/95	12/16/94	12/16/94
Phenol			<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene			(6) R	<10	<10	<10	<10	(0.6) J
1,2-Dichlorobenzene			(3) R	<10	<10	<10	<10	<10
2-Methylphenol			(4) J	<10	<10	<10	<10	(2) J
4-Methylphenol			10	<10	<10	<10	<10	<10
1,2,4-Trichlorobenzene			(5) J	<10	<10	<10	<10	<10
Naphthalene			(1) J	<10	<10	<10	<10	<10
2-Methylnaphthalene			<10	<10	(3) J	<10	<10	<10
2,4,6-Trichlorophenol			(0.9) J	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol			<25	<25	<25	<25	<25	(7) J
Acenaphthylene			<10	<10	<10	<10	<10	<10
Acenaphthene			<10	<10	<10	<10	<10	<10
Dibenzofuran			<25	<25	(0.7) J	<25	<10	<10
Diethylphthalate			10	<10	<10	<10	(0.9) J	(2) J
Phenanthrene			<10	<10	<10	<10	<10	<10
Anthracene			<10	<10	<10	<10	<10	<10
Di-n-butylphthalate			<10	<10	<10	<10	<10	<10
Fluoranthene			<10	<10	<10	<10	<10	<10
Pyrene			<10 J	<10	<10	<10	<10	<10
Benzo(a)anthracene			<10	<10	<10	<10	<10	<10
Chrysene			<10	<10	<10	<10	<10	<10
bis(2-Ethylhexyl) phthalate			(1) J	(4) J	(3) J	(0.7) J	<10	(1) J
Benzo(b)fluoranthene			<10	<10	<10	<10	<10 J	<10 J
Benzo(k)fluoranthene			<10	<10	<10	<10	<10	<10
Benzo(a)pyrene			<10	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene			<10 J	<10	<10	<10	<10	<10
Carbazole			<10	<10	<10	<10	<10	<10

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(J) = Less than Detection Limit

For RCL QNT-SVOC'S

3024699

SURFACE WATER/GROUNDWATER SVOCs RESULTS PHASE II SITE INVESTIGATION REPORT

		SITE	MW-07	MW-08	MW-09	MW-10	SW-01	SW-02
		SAMPLE ID	MW-07	MW-08	MW-09	MW-10	SW-01	SW-02
CONSTITUENT	(Units in ug/l)	DATE	02/09/95	02/09/95	02/09/95	02/09/95	12/16/94	12/16/94
Benzo(g,h,i)perylene			<10	<10	<10	<10	<10	<10
<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">302470</div> <div></div> </div>								

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-SVOC'S

TABLE 11.2

SURFACE WATER/GROUNDWATER SVOCs RESULTS
PHASE II SITE INVESTIGATION REPORT

Page: 1C of 2C

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/l)	SITE	SW-03	SW-04	SW-05	SW-06	SW-07
		SAMPLE ID	SW-03	SW-04	SW-05	SW-06	SW-07
		DATE	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94
Phenol			<10	<10	(3) J	<10	<10
1,4-Dichlorobenzene			<10	<10	<10	<10	<10
1,2-Dichlorobenzene			<10	<10	<10	<10	<10
2-Methylphenol			<10	<10	<10	<10	<10
4-Methylphenol			<10	<10	(4) J	<10	<10
1,2,4-Trichlorobenzene			<10	<10	<10	<10	<10
Naphthalene			<10	<10	(1) J	<10	<10
2-Methylnaphthalene			<10	<10	(0.8) J	<10	<10
2,4,6-Trichlorophenol			<10	<10	<10	<10	<10
2,4,5-Trichlorophenol			<25	<25	<25	<25	<25
Acenaphthylene			<10	<10	(0.8) J	<10	<10
Acenaphthene			<10	<10	<10	<10	<10
Dibenzofuran			<10	<10	<10	<10	<10
Diethylphthalate			<10	<10	<10	<10	<10
Phenanthrene			<10	<10	(8) J	<10	<10
Anthracene			<10	<10	(0.8) J	<10	<10
Di-n-butylphthalate			<10	<10	(2) J	<10	<10
Fluoranthene			<10	<10	13	<10	<10
Pyrene			<10	<10	12	<10	<10
Benzo(a)anthracene			<10	<10	(4) J	<10	<10
Chrysene			<10	<10	(7) J	<10	<10
bis(2-Ethylhexyl) phthalate			(2) J	<10	(8) J	<10	<10
Benzo(b)fluoranthene			<25	<10 J	(9) J	<10 J	<10 J
Benzo(k)fluoranthene			<10	<10	(4) J	<10	<10
Benzo(a)pyrene			<10	<10	(5) J	<10	<10
Indeno(1,2,3-cd)pyrene			<10	<10	(2) J	<10	<10
Carbazole			<10	<10	(1) J	<10	<10

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

(l) = Less than Detection Limit

For RCL QNT-SVOC'S

302471

SURFACE WATER/GROUNDWATER SVOCs RESULTS PHASE II SITE INVESTIGATION REPORT

		SITE	SW-03	SW-04	SW-05	SW-06	SW-07
		SAMPLE ID	SW-03	SW-04	SW-05	SW-06	SW-07
CONSTITUENT	(Units in ug/l)	DATE	12/16/94	12/16/94	12/16/94	12/16/94	12/16/94
Benzo(g,h,i)perylene			< 10	< 10	(2) J	< 10	< 10
<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">302472</div> <div> <p>Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed</p> <p>(I) = Less than Detection Limit</p> <p>For RCL QNT-SVOC'S</p> </div> </div>							

TABLE 11.3

SURFACE WATER/GROUNDWATER TCL PESTICIDES
RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

Page: 1A of 1C

		SITE	MW-01	MW-02	MW-03	MW-04	MW-05	MW-06
		SAMPLE ID	MW-01	MW-02	MW-03	MW-04	MW-05	MW-06
CONSTITUENT	(Units in ug/l)	DATE	02/08/95	02/08/95	02/08/95	02/08/95	02/09/95	02/09/95
alpha-BHC			(0.013) J	1.3 DJ	0.6 J	0.26 JN	37 DJN	5.8 DJ
beta-BHC			<0.05	<0.05	0.52	(0.032) R	4.5 JN	0.76
delta-BHC			<0.05 J	0.075 JN	(0.09) J	(0.009) R	11 J	0.8 J
gamma-BHC (Lindane)			0.065	0.94	0.42	0.074	36 D	2.2
Heptachlor			<0.05	<0.05	<0.2	<0.05	<0.5	<0.3
Heptachlor epoxide			(0.011) J	<0.05	<0.2	<0.05	<0.5	<0.3
Dieldrin			0.21	<0.10	(0.17) J	<0.10	1.6 J	<0.50
4,4'-DDE			<0.10	<0.10	<0.40	<0.10	<1.0	<0.50
Endrin			(0.015) J	<0.10	<0.40	0.15	<1.0	<0.50
4,4'-DDD			<0.10	0.2 JN	(0.034) R	<0.10	<1.0	5.0 UJD
4,4'-DDT			0.11 JN	<0.10	(0.38) J	(0.022) J	<1.0	<0.50
Methoxychlor			<0.5	<0.5	<2	<0.5	<5	<3
Endrin ketone			<0.10	<0.10	(0.17) J	<0.10	1.3	<0.50
gamma-Chlordane			<0.05	0.051 J	<0.2	<0.05	<0.5	<0.3

302473

302473

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-PSTCDS

TABLE 11.3

SURFACE WATER/GROUNDWATER TCL PESTICIDES
RESULTS

Page: 1B of 1C

PHASE II SITE INVESTIGATION REPORT

Pulverizing Services Site
Moorestown, New Jersey

CONSTITUENT	(Units in ug/l)	SITE	MW-07	MW-08	MW-09	MW-10	SW-01	SW-02
		SAMPLE ID	MW-07	MW-08	MW-09	MW-10	SW-01	SW-02
		DATE	02/09/95	02/09/95	02/09/95	02/09/95	12/16/94	12/16/94
alpha-BHC			69 DJ	(0.017) R	5.3 DJN	0.38 DJN	11 J	25
beta-BHC			6 JN	(0.02) R	1.9 JN	0.074 JN	1.1 JN	1.8
delta-BHC			20 DJ	<0.05	3.3 J	(0.011) R	4.3 J	9.4
gamma-BHC (Lindane)			19 D	<0.05	3.8	<0.05	7.5 J	18
Heptachlor			<1	<0.05	<0.3	<0.05	<0.3	(0.086) J
Heptachlor epoxide			<1	<0.05	<0.3	<0.05	<0.3	<0.5
Dieldrin			<2.0	<0.10	<0.50	(0.008) J	0.64	(0.9) J
4,4'-DDE			<2.0	(0.094) J	<0.50	(0.011) J	(0.24) J	<1.0
Endrin			<2.0	<0.10	<0.50	<0.10	<0.50	<1.0
4,4'-DDD			<2.0	0.10 JP	(0.15) J	<0.10	2.9 JN	(0.40) J
4,4'-DDT			<2.0	(0.069) J	<0.50	(0.095) J	4.6 JD	(0.41) J
Methoxychlor			<10	<0.5	<3	<0.5	4.7	(1.2) J
Endrin ketone			<2.0	<0.10	<0.50	<0.10	(0.27) J	(0.55) J
gamma-Chlordane			<1	<0.05	<0.3	<0.05	<0.3	<0.5

302474

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

() = Less than Detection Limit

For RCL QNT-PSTCDS

Page: 1C of 1C

Pulverizing Services Site Moorestown, New Jersey

302475

() = Less than Detection Limit

For RCL QNT-PSTCDS

SURFACE WATER/GROUNDWATER SEVIN,
MALATHION AND ROTENONE RESULTS
PHASE II SITE INVESTIGATION REPORTPulverizing Services Site
Moorestown, New Jersey

SITE	DATE	Sevin (ug/l)	Malathion (ug/l)
MW-01	02/08/95	< 10	< 0.5
MW-02	02/08/95	150	1
MW-03	02/08/95	< 10	< 0.5
MW-04	02/08/95	< 10	< 0.50
MW-05	02/09/95	1600	1.8
MW-06	02/09/95	95	< 0.50
MW-07	02/09/95	790	< 0.50
MW-08	02/09/95	< 10	< 0.50
MW-09	02/09/95	< 10	5.5
MW-10	02/09/95	< 10	< 0.50
SW-01	12/16/94	< 20	< 0.50
SW-02	12/16/94	57	< 0.50
SW-03	12/16/94	64	0.67
SW-04	12/16/94	< 20	< 0.50
SW-05	12/16/94	< 40	< 2.0
SW-06	12/16/94	< 20	< 0.50
SW-07	12/16/94	23	< 0.50

Values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

SURFACE WATER/GROUNDWATER TOTAL
METALS RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	Arsenic (ug/l)	Cadmium (ug/l)	Chromium (ug/l)	Lead (ug/l)
MW-01	02/08/95	6.8 B	<5	<8	4.9 J
MW-02	02/08/95	771	<5	444	160 J
MW-03	02/08/95	<10	7.3	<8	6.3
MW-04	02/08/95	<100	49.6	9 B	<40
MW-05	02/09/95	<50	39.6	24.4	36.7 J
MW-06	02/09/95	7.7 B	<5	<8	2.2 BJ
MW-07	02/09/95	<10	<5	249 J	4.5 BJ
MW-08	02/09/95	72.9	<5	71.1	53.6
MW-09	02/09/95	100	<5 J	343 J	139
MW-10	02/09/95	295	53.3 J	381 J	142
SW-01	12/16/94	2.1	23	<5	2.7
SW-02	12/16/94	4	34.9	5.1	3.1
SW-03	12/16/94	2.1	32.5	9.4	8.1
SW-04	12/16/94	2.3	9.3	<5	10.4
W-05	12/16/94	616	65.2	518	3220
SW-06	12/16/94	2.8	<3	<5	2.2
SW-07	12/16/94	3.6	<3	<5	3.4

values represent total concentrations unless noted < = Not detected at indicated reporting limit -- = Not analyzed

For RCL QNT-TOTMET

302477

SURFACE WATER/GROUNDWATER DISSOLVED
METALS RESULTS
PHASE II SITE INVESTIGATION REPORT
Pulverizing Services Site
Moorestown, New Jersey

SITE	DATE	Dissolved Arsenic (ug/l)	Dissolved Cadmium (ug/l)	Dissolved Chromium (ug/l)	Dissolved Lead (ug/l)
MW-01	02/08/95	<5	<5	<8	<2
MW-02	02/08/95	720 P	<5	494	156 J
MW-03	02/08/95	<5	<5	<8	<2
MW-04	02/08/95	<100	52.1	<8	<40
MW-05	02/09/95	<50	41.8	18.9	36.7 J
MW-06	02/09/95	<5	<5	<8	<2
MW-07	02/09/95	<5	<5	<8	2.7 J
MW-08	02/09/95	<5	<5	<8	<2
MW-09	02/09/95	<5	<5	<8	<2
MW-10	02/09/95	<100	63.3 J	<8	69.5 J

values represent total concentrations unless noted < = Not detected at indicated reporting limit --- = Not analyzed

For RCL QNT-DISMET

302478

302479

SITE	DATE	TPH (as diesel) (ug/l)	TPH (as motor oil) (E5030-8015) (ug/l)
UST-01	12/16/94	2800000000 J	—
UST-02	12/16/94	2400000000 J	—

For RCL QNT-TRPH

TABLE 13

SCREENING OF SOIL / SEDIMENT / FORMER DISPOSAL AREA PCOIs

Constituent Detected	Highest Concentrations			Region III RBC
	Soil	Sediment	Former Disposal Area	Industrial
Volatile Organic Compounds (VOCs) (ug/kg)				
Acetone	14 B (SB-037/1-2)	48 B (SED-002)	76 BU (TP-06B)	200,000,000
Toluene	<14 (SB-002/0-0.5)	<45 (SED-07)	15 (TP-08A)	410,000,000
Xylene (total)	<14 (SB-002/0-0.5)	<45 (SED-07)	17 (TP-07A)	1,000,000,000
Semi-Volatile Organic Compounds (SVOCs) (ug/kg)				
Phenol	39,000 (SB-036/0-0.5)	2,500 (SED-002)	<21,000 (TP-06B)	1,000,000,000
4-Chloroaniline	<9,800 (SB-036/0-0.5)	8,000 (SED-001)	760 (SB-009/0-0.5)	8,200,000
Hexachlorobenzene	<9,800 (SB-036/0-0.5)	(2,100) J (TR-05)	200,000 D (SB-007/0-0.5)	3,600
Di-n-butyl-phthalate	4,200 B (SB-010/1-2)	<2,600 (SED-001)	1,300 B (TP-11B)	200,000,000
Fluoranthene	3,700 (SB-066/0-0.5)	45,000 (TR-05)	<8,700 (TP-06B)	82,000,000
Pyrene	2,900 (SB-066/0-0.5)	33,000 (TR-05)	<8,700 (TP-06B)	61,000,000
Butyl benzyl phthalate	<9,800 (SB-036/0-0.5)	<2,600 (SED-001)	1,000 J (SB-060/0-0.5)	410,000,000
Benzo(a)anthracene	2,300 (SB-066/0-0.5)	22,000 (TR-05)	<8,700 (TP-06B)	7,800
Chrysene	3,100 (SB-066/0-0.5)	20,000 (TR-05)	<8,700 (TP-06B)	780,000
bis(2-Ethylhexyl)phthalate	<9,800 (SB-036/0-0.5)	420 (TR-05)	1,400 J (SB-060/0-0.5)	410,000
Benzo(b)fluoranthene	4,500 (SB-066/0-0.5)	24,000 (TR-05)	<8,700 J (TP-06B)	7,800
Benzo(k)fluoranthene	1,700 (SB-066/0-0.5)	12,000 J (TR-05)	<8,700 (TP-06B)	78,000
Benzo(a)pyrene	1,300 (SB-066/0-0.5)	18,000 J (TR-05)	<8,700 (TP-06B)	780
Indeno(1,2,3-cd)pyrene	1,100 (SB-066/0-0.5)	(6,400) J (TR-05)	<8,700 (TP-06B)	7,800
Pentachloronitrobenzene	<9,800 (SB-036/0-0.5)	48,000 (TR-05)	<8,700 (TP-06B)	22,000
TCL Pesticides (ug/kg)				
alpha-BHC	18,000 J (SB-010/0-0.5)	750 (SED-007)	7,800 (TP-07A)	910
beta-BHC	500 J (SB-019/0-0.5)	210 J (SED-007)	16 JN (TP-11B)	3,200
Lindane	<20,000 (SB-010/0-0.5)	<2,800 (SED-002)	210 DJ (TP-11B)	4,400
Aldrin	<20,000 (SB-010/0-0.5)	<2,800 (SED-002)	<11,000 J (TP-06B)	340
Endosulfan I	670 J (SB-019/0-0.5)	31 (SED-006)	<3,900 J (TP-08A)	12,000,000
Dieldrin	350,000 D (SB-010/0-0.5)	3,200 X (SED-007)	2,200,000 (SB-007/0-0.5)	360
4,4'-DDE	20,000 (SB-019/0-0.5)	1,000 JN (TR-05)	43,000 J (TP-07A)	17,000
Endrin	360 X (SB-040/0-0.5)	<5,500 (SED-002)	<22,000 J (TP-06B)	610,000
4,4'-DDD	51,000 JN (SB-010/0-0.5)	31,000 (SED-002)	360,000 JN (SB-007/0-0.5)	24,000
4,4'-DOT	2,100,000 D (SB-010/0-0.5)	120,000 D (SED-002)	6,800,000 D (SB-007/0-0.5)	17,000
Methoxychlor	4,900 X (SB-040/0-0.5)	45,000 (SED-003)	<110,000 J (TP-06B)	10,000,000
Sevin, Malathion, and Rotenone (ug/kg)				
Sevin	8,300 (SB-066/0-0.5)	9,600 (STM-01)	3,100,000 (TP-06B)	200,000,000
Malathion	260 P (SB-010/0-0.5)	440 (SED-003)	120* (TP-06B)	41,000,000
Rotenone	not analyzed for	30,000 J (TR-05)	2,300 (TP-06A)	8,200,000
Metals (mg/kg)				
Arsenic	53.7 (SB-036/0-0.5)	27.4 (SED-005)	147 (TP-07A)	610
Cadmium	4.3 (SB-036/0-0.5)	56.7 (TR-05)	8.9 (TP-06B)	1,000
Chromium	23.2 (SB-066/0-0.5)	90.2 (TR-05)	79.5 (TP-07B)	1,000,000
Lead	531 (SB-036/0-0.5)	1,020 J (TR-05)	408 (SB-007/0-0.5)	400

- NOTES:** 1) Blank space indicates no literature reported value
 2) Shaded space indicates composition in that media identified as PCOI
 3) Detection modifiers as indicated in Data Submittal (McLaren/Hart, March 27, 1995).

302480

TABLE 14

SCREENING OF RESIDENTIAL AREA SOIL PCOIs

Constituent Detected	Soil Boring Identification	Highest Concentrations	Region III RBC <i>Residential</i>
<i>TCL Pesticides (ug/Kg)</i>			
Endosulfan I	SB-088/0-0.5	6.5	470000
Dieldrin	SB-93/0-0.5	180	36
4,4'-DDE	SB-093/0-0.5	1,500	1900
4,4'-DDD	SB-093/0-0.5	440	2700
4,4'-DDT	SB-034B/0-0.5	32,400	1,900
<i>TCL Metals (mg/Kg)</i>			
Arsenic	SB-088/0-0.5	12.7	23
Cadmium	SB-093/0-0.5	0.25	39
Chromium	SB-090/1-1.5	22.1	78,000
Lead	SB-088/0-0.5	40.7	400

NOTES: 1) Blank space indicates no literature reported value.
2) Shaded space indicates composition in that media identified as PCOI

302481

TABLE 15
SCREENING OF GROUNDWATER PCOIs










Constituent Detected	Highest Concentrations	Region III RBC Tap Water	MCL
	Groundwater		
Volatile Organic Compounds (VOCs) (ug/L)			
Acetone	1,200 J (MW-03)	3,700	
Chloroform	15 (MW-10)	0.15	100
Carbon Tetrachloride	10 (MW-10)	0.16	5
Benzene	15 (MW-07)	0.36	5
Tetrachloroethene	14.0 (MW-09)	1.1	5
Chlorobenzene	49 (MW-07)	39	100
Ethylbenzene	11 (MW-07)	1,300	700
Xylene (total)	86 (MW-06)	12,000	10,000
Semi-Volatile Organic Compounds (SVOCs) (ug/L)			
4-Methylphenol	10 (MW-07)	180	
Naphthalene	170 (MW-02)		
2-Methylnaphthalene	390 (MW-02)		
Diethylphthalate	24 (MW-05)	29,000	
Fluoranthene	<70 (MW-02)		
Pyrene	<70 J (MW-02)		
TCL Pesticides (ug/L)			
alpha-BHC	69 DJ (MW-07)	0.011	
beta-BHC	6 JN (MW-07)	0.037	
gamma-BHC (Lindane)	35 D (MW-05)	0.052	0.2
Dieldrin	1.6 J (MW-05)	0.0042	
4,4'-DDE	<2.0 (MW-07)	0.2	
Endrin	0.15 (MW-04)	11	2
4,4'-DDD	0.2 JN (MW-02)	0.28	
4,4'-DDT	<2.0 (MW-07)	0.2	
Methoxychlor	<10 (MW-07)	180	40
Sevin and Malathion (ug/L)			
Sevin	1,600 (MW-05)	3,700	
Malathion	5.5 (MW-09)	730	
Dissolved Metals (ug/L)			
Arsenic	720 P (MW-02)	11	50
Cadmium	63.3 J (MW-10)	18	5
Chromium	494 (MW-02)	37,000	100
Lead	156 J (MW-02)		5

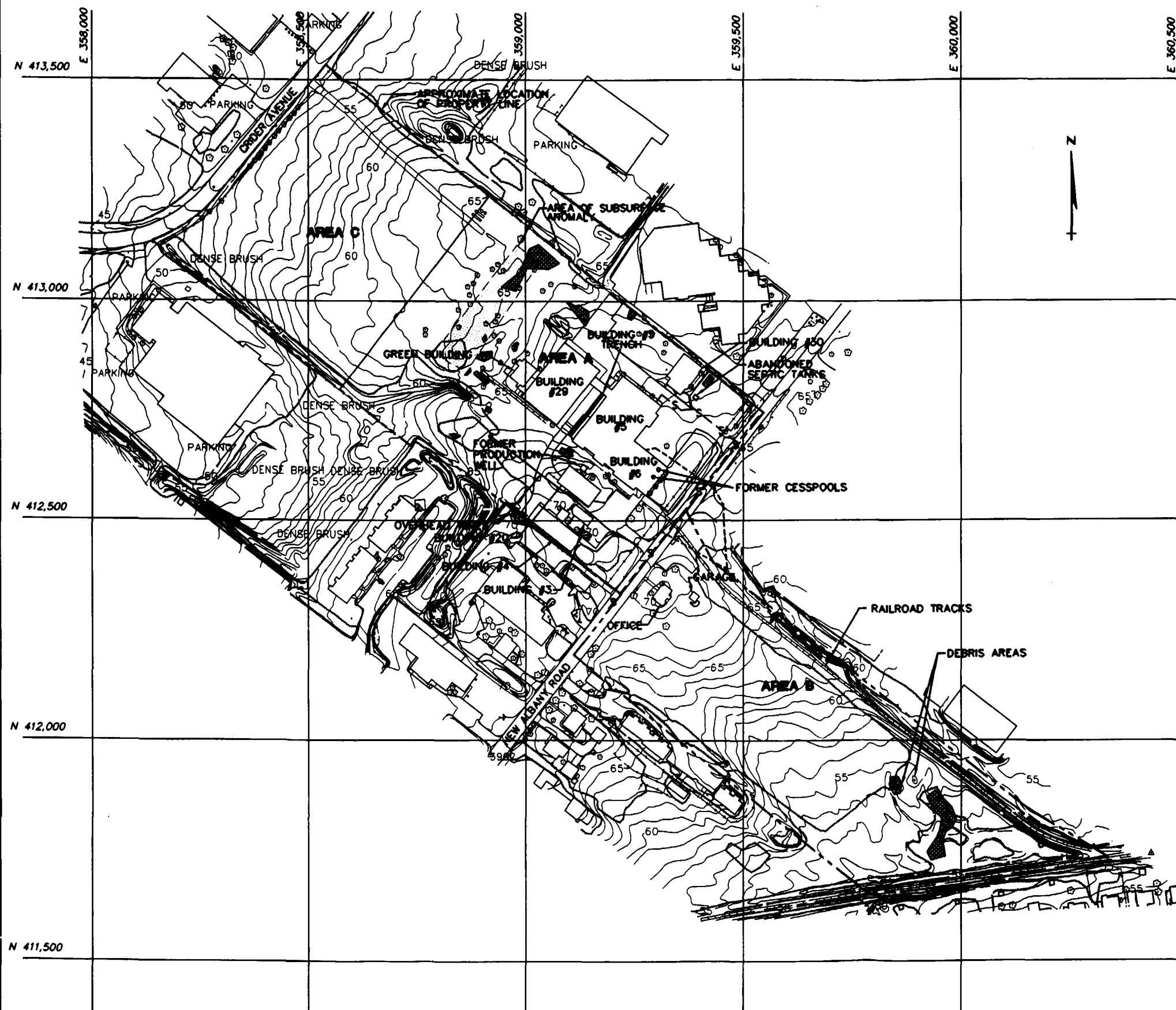
NOTES: 1) Blank space indicates no literature reported value.
2) Shaded space indicates compound in that media identified as PCOI.
3) Detection modifiers as indicated in Data Submittal (McLaren/Hart, March 27, 1995).

302482

302483

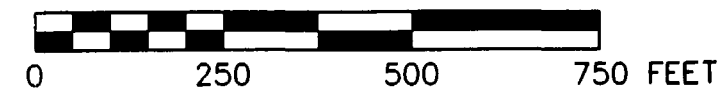
LEGEND:

-  FENCE
-  TREELINE
-  SANITARY SEWER DRAIN LINE
-  STORM SEWER DRAIN LINE
-  UNDERGROUND STORAGE TANK
-  GROUND SURFACE ELEVATION CONTOUR
-  PROPERTY LINE (APPROXIMATE LOCATION)
-  AREA DIVIDE LINE
-  NONVEGETATED AREAS

**NOTES:**

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
 PULVERIZING SERVICES SITE
 MOORESTOWN, NEW JERSEY

SITE PLAN

DRAWING NUMBER
 09.0801461.013
FIGURE 2

ISSUE DATE:
 5/1/95

8500 BROOKTREE ROAD
 SUITE 300
 WEXFORD, PA. 15090

ED: BY: DATE: TIME: EXPIRING TIME: CHECK POINT NUMBER: DRAWING NAME:

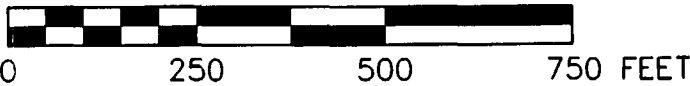
LEGEND:

- FENCE
- TREELINE
- SANITARY SEWER DRAIN LINE
- STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- GROUND SURFACE ELEVATION CONTOUR
- PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE
- INDUSTRIAL USE
- COMMERCIAL USE
- RESIDENTIAL USE

NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

ADJACENT LAND USE

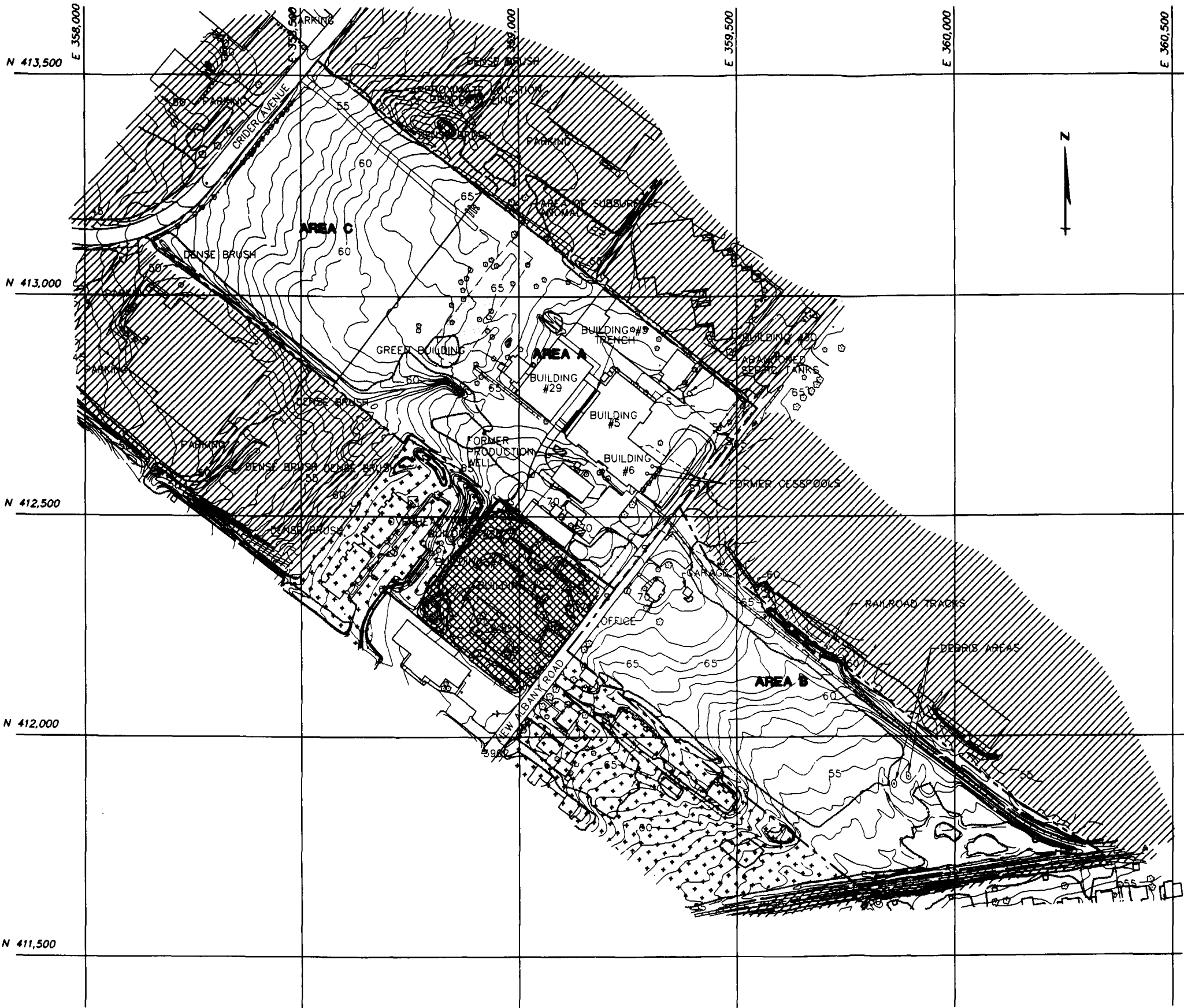
DRAWING NUMBER
09.0801461.013
FIGURE 3

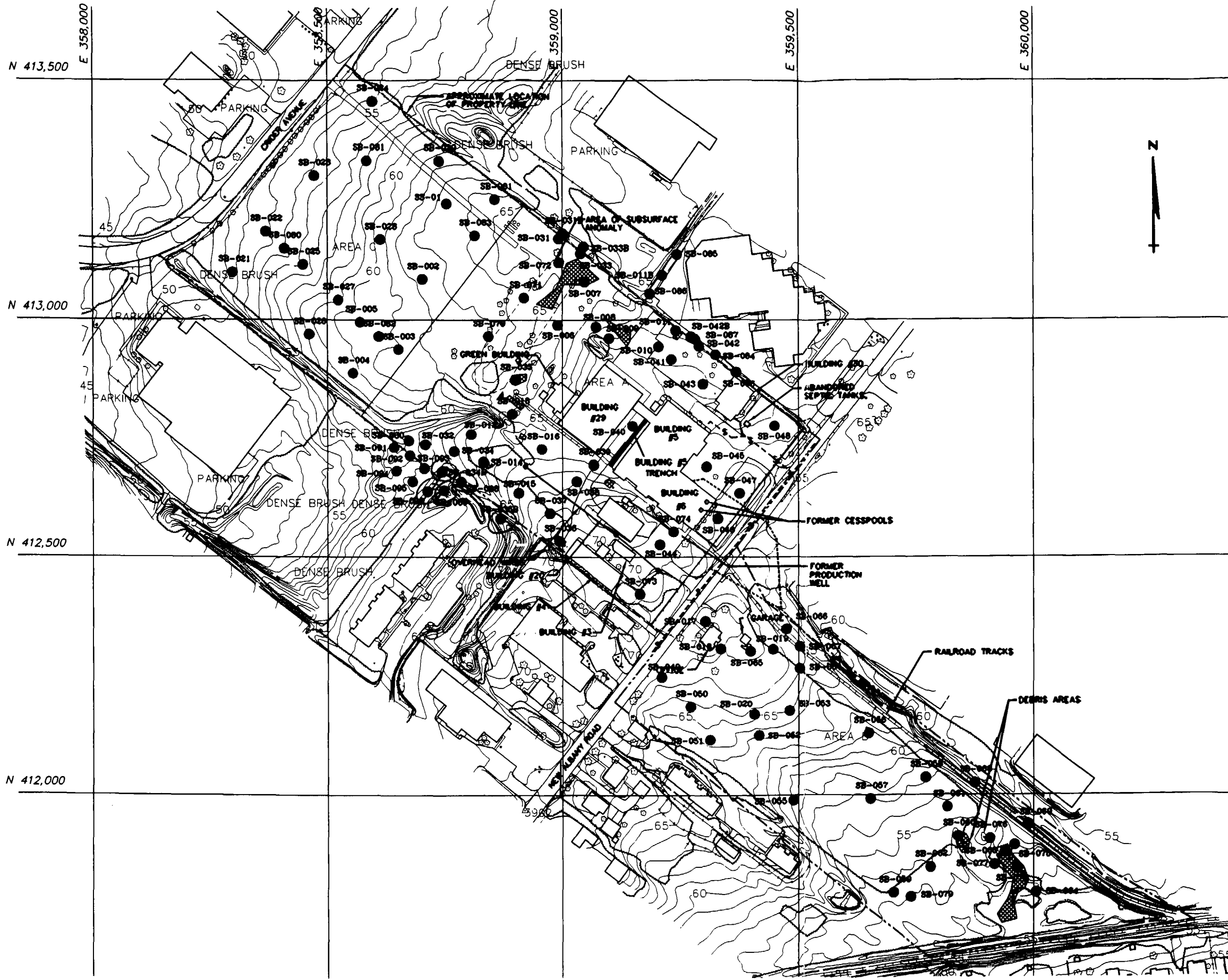
ISSUE DATE:
5/1/95

DATE

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

EDITED BY: DATE: TIME: EDITING TIME: CHECK PRINT NUMBER: DRAWING NAME:





- LEGEND:**
- FENCE
 - WEDLINE
 - - - - - SANITARY SEWER DRAIN LINE
 - - - - - STORM SEWER DRAIN LINE
 - - - - - GROUND SURFACE ELEVATION CONTOUR
 - - - - - PROPERTY LINE (APPROXIMATE LOCATION)
 - AREA DRAIN LINE
 - SB-057 SOIL SAMPLE LOCATION
 - MONUMENTED AREA


NOTES:
1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).



ISSUE DATE:
5/1/85

DATE

8500 BROOKTREE ROAD
SUITE 300
NEWFORD, PA. 15090

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REV #	DATE	DESCRIPTION	APPD
PPG INDUSTRIES, INC. PITTSBURGH, PENNSYLVANIA			
		DRAWN: PAR	DATE: 3/24/85
		CHKD:	DATE:
		APPD:	DATE:
		SCALE:	1" = 100'-0"
PHASE II SITE INVESTIGATION REPORT PULVERIZING SERVICES SITE MOORESTOWN, NEW JERSEY			
SOIL BORING LOCATIONS		DRAWING NUMBER 09.0801461.013 FIGURE - 4	

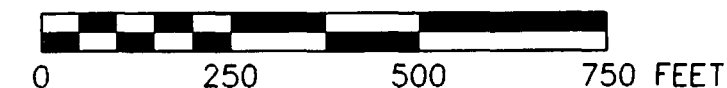
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LEGEND:

- NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV #	DATE	DESCRIPTION	APP

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE: 1" = 250'-0"	

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

TEST PIT AIR SAMPLE LOCATIONS

DRAWING NUMBER
09.0801461.013
FIGURE 5

ISSUE DATE:
5/1/95

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

302487

LEGEND:

- FENCE
- TREELINE
- SANITARY SEWER DRAIN LINE
- STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- GROUND SURFACE ELEVATION CONTOUR
- PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE
- SED-06
- SEDIMENT SAMPLE LOCATION



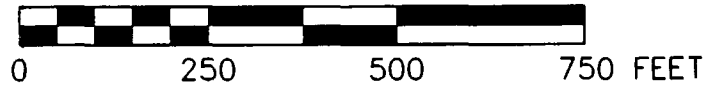
SED-06

SEDIMENT SAMPLE LOCATION

NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

SEDIMENT SAMPLING LOCATIONS

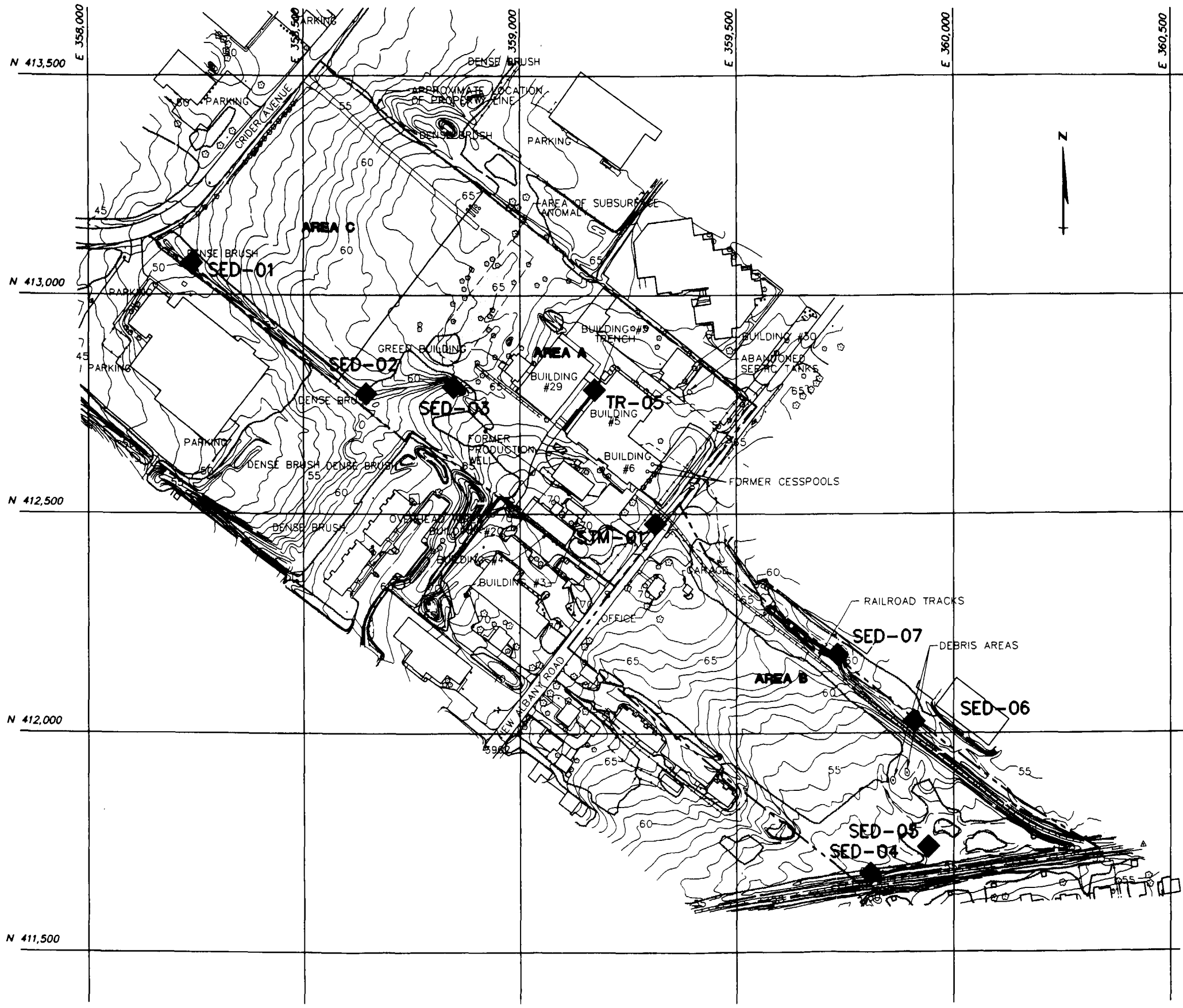
DRAWING NUMBER
09.0801461.013
FIGURE 6

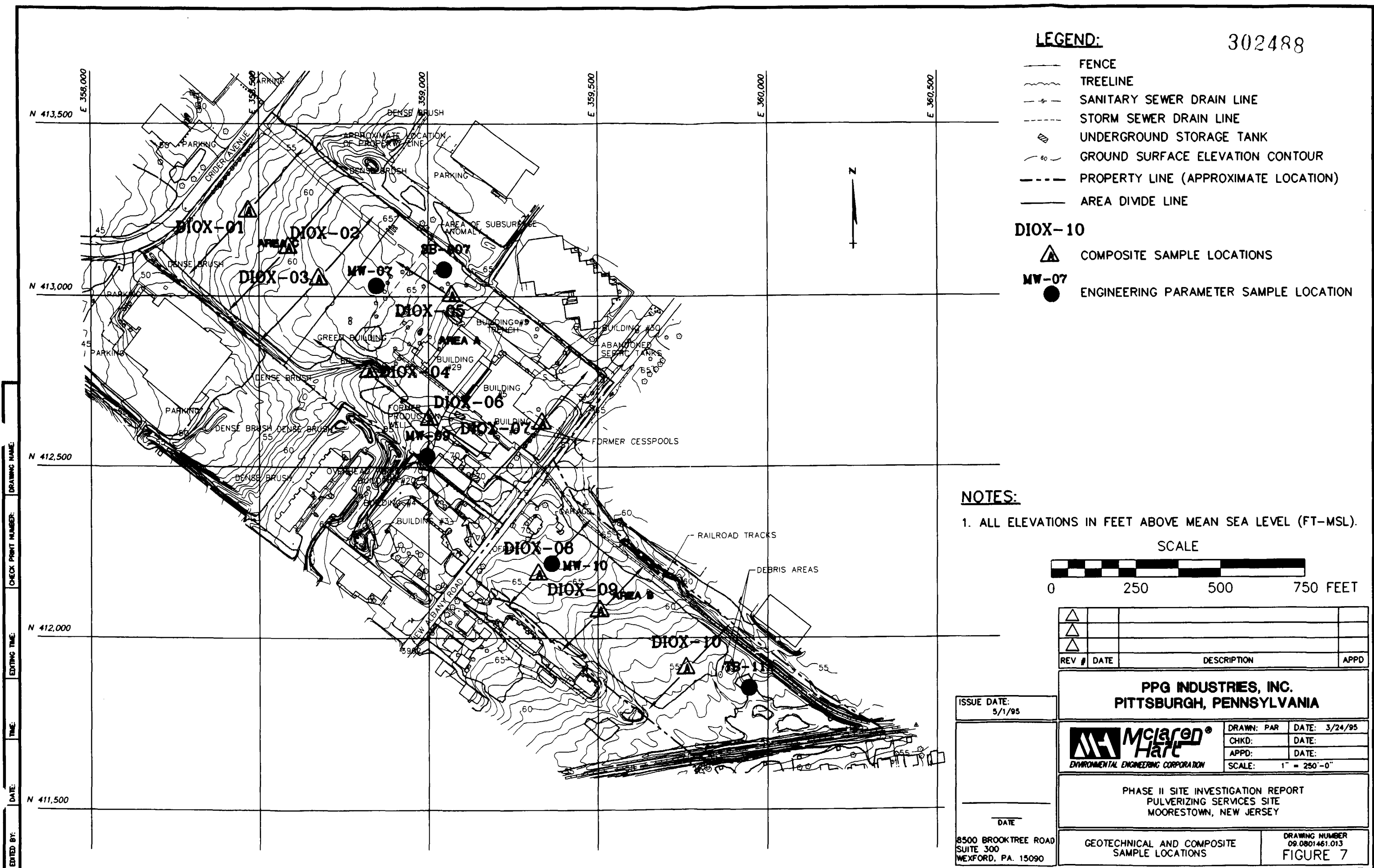
ISSUE DATE:
5/1/95

DATE

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090











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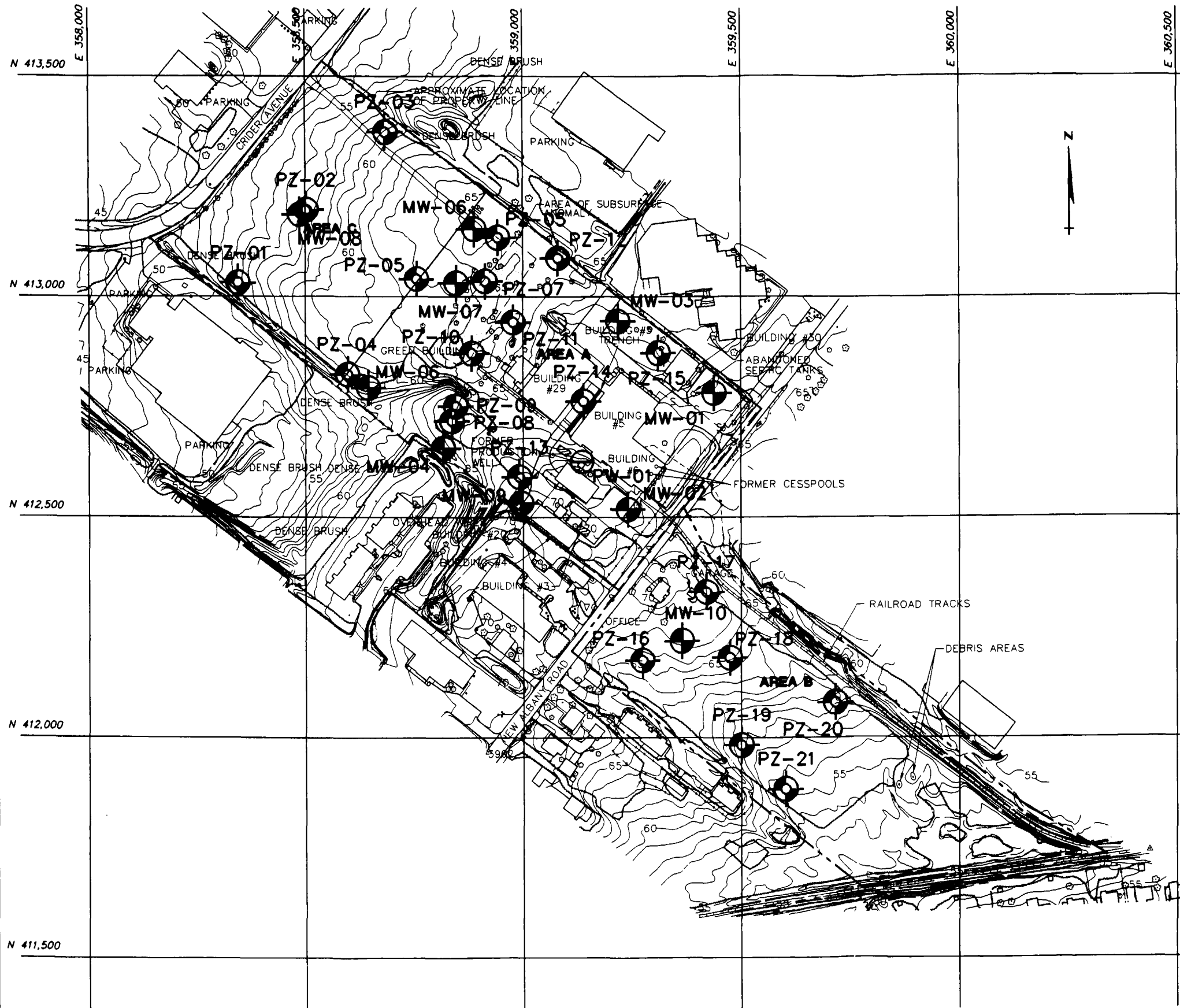




LEGEND:

302489

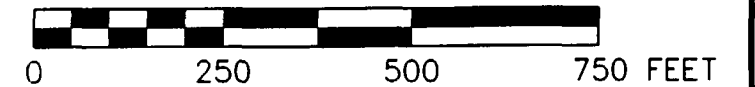
-  FENCE
-  TREELINE
-  SANITARY SEWER DRAIN LINE
-  STORM SEWER DRAIN LINE
-  UNDERGROUND STORAGE TANK
-  GROUND SURFACE ELEVATION CONTOUR
-  PROPERTY LINE (APPROXIMATE LOCATION)
-  AREA DIVIDE LINE
-  MW-10 MONITORING WELL LOCATIONS
-  PZ-16 PIEZOMETER LOCATIONS



NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



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CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

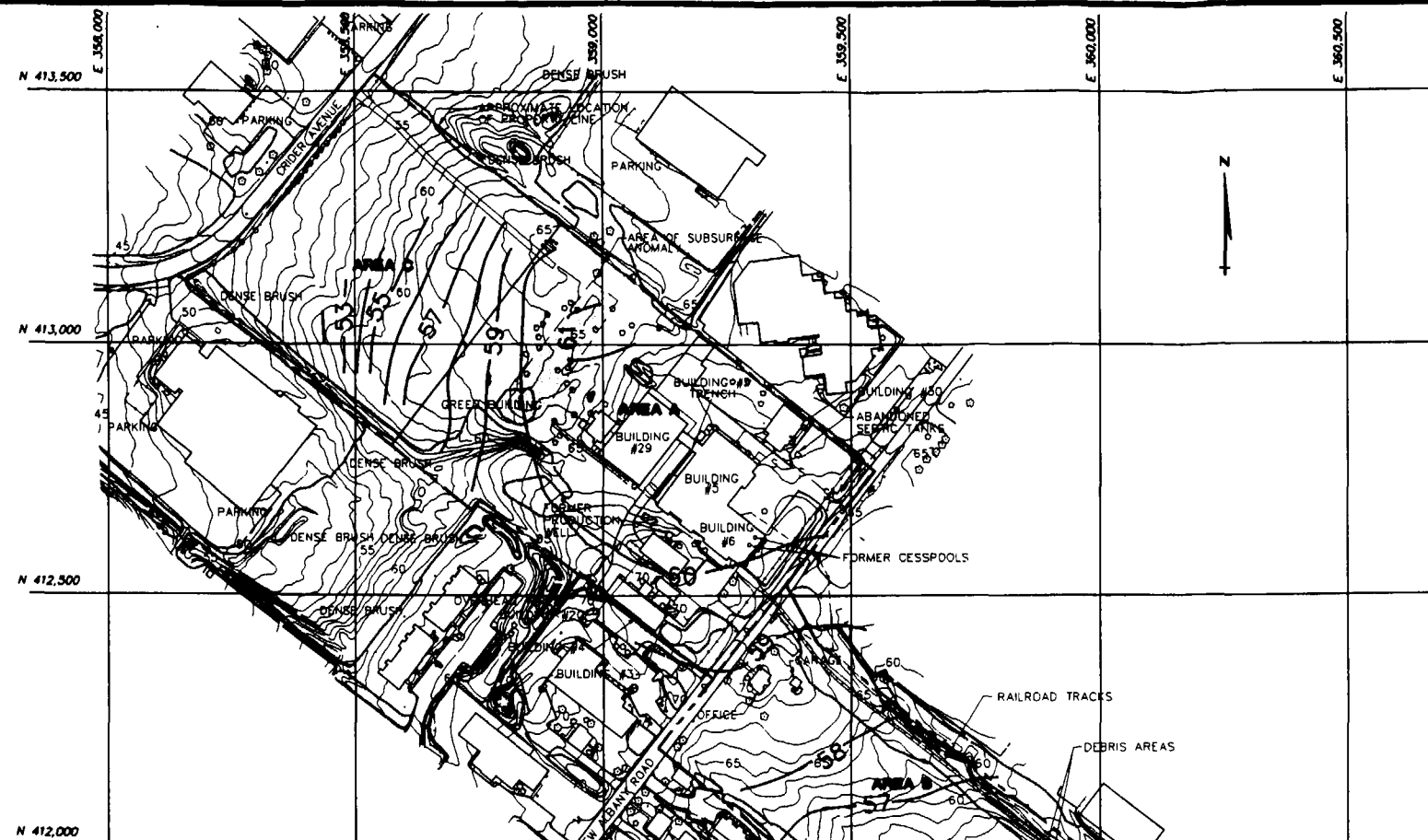
PIEZOMETER/MONITORING
WELL LOCATIONS

DRAWING NUMBER
09.0801461.013
FIGURE 8

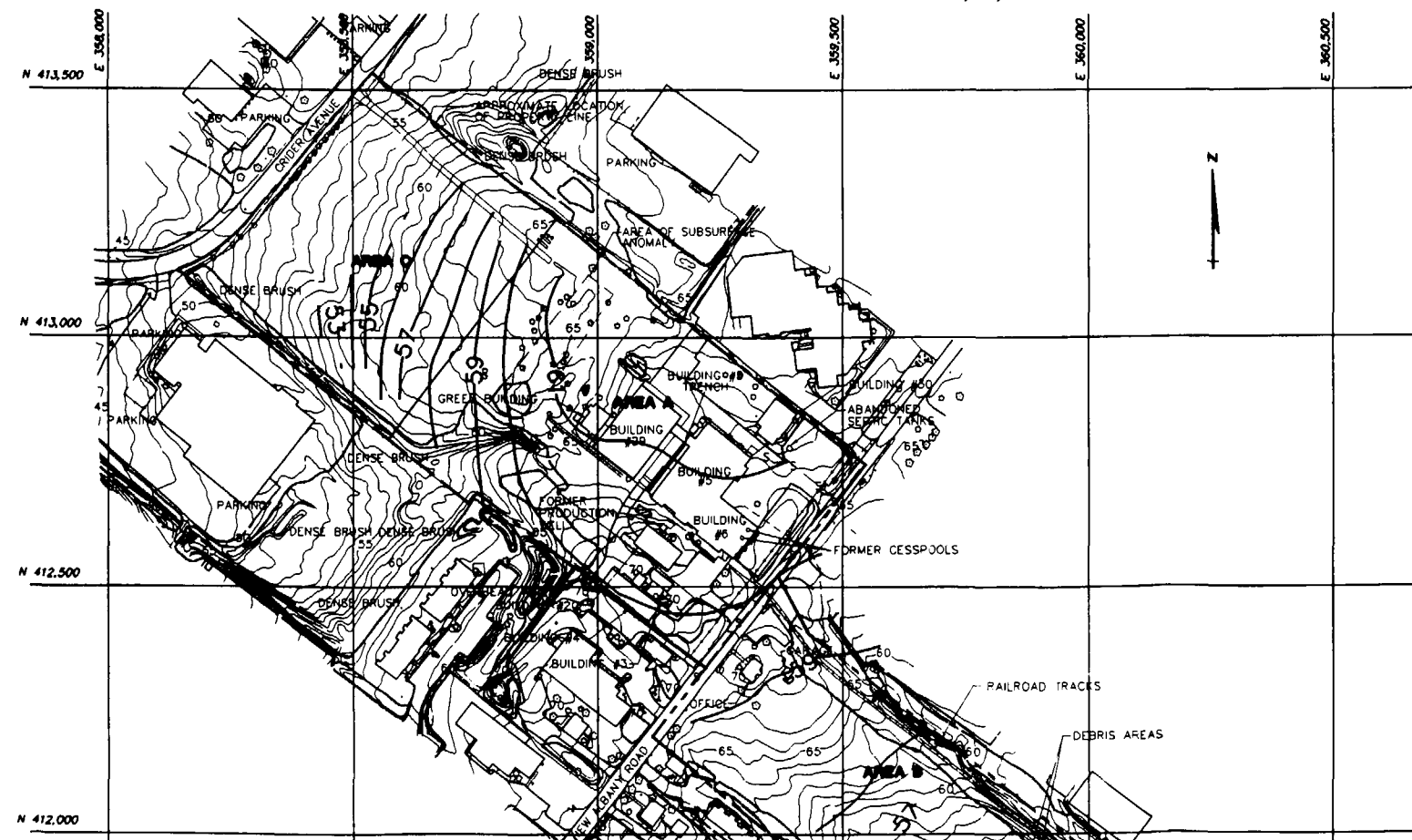
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8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

ED: BY: DATE: TIME: EDITING TIME: CHECK PRINT NUMBER: DRAWING NAME:



GROUNDWATER ELEVATIONS TAKEN 1/4/95



GROUNDWATER ELEVATIONS TAKEN 2/10/95

LEGEND:

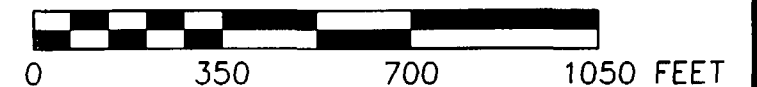
302490

- FENCE
- TREELINE
- +— SANITARY SEWER DRAIN LINE
- STORM SEWER DRAIN LINE
- ◻ UNDERGROUND STORAGE TANK
- 60 GROUND SURFACE ELEVATION CONTOUR
- PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE
- 57— GROUNDWATER SURFACE CONTOURS

NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV	DATE	DESCRIPTION	APPD

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5/1/95

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: MTB	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 350'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

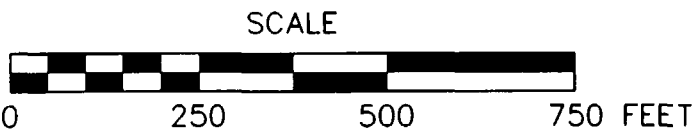
GROUNDWATER POTENTIOMETRIC
SURFACE CONTOURS

DRAWING NUMBER
09.0801461.013
FIGURE 9

EDITED BY: DATE: TIME: EDITING TIME: CHECK PRINT NUMBER: DRAWING NAME:


- FENCE
- TREELINE
- SANITARY SEWER DRAIN LINE
- STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- GROUND SURFACE ELEVATION CONTOUR
- PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE
- MW-07, MW-01: GROUNDWATER SAMPLE LOCATIONS (INSTALLED DURING PHASE II ACTIVITIES)
- SW-07: GROUNDWATER SAMPLE LOCATIONS (PREVIOUSLY INSTALLED WELL)
- SW-07: SURFACE WATER SAMPLE LOCATIONS
- PW-01: FORMER PRODUCTION WELL SAMPLE

NOTES:
1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).



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REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



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CHKD: DATE:
APPD: DATE:
SCALE: 1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

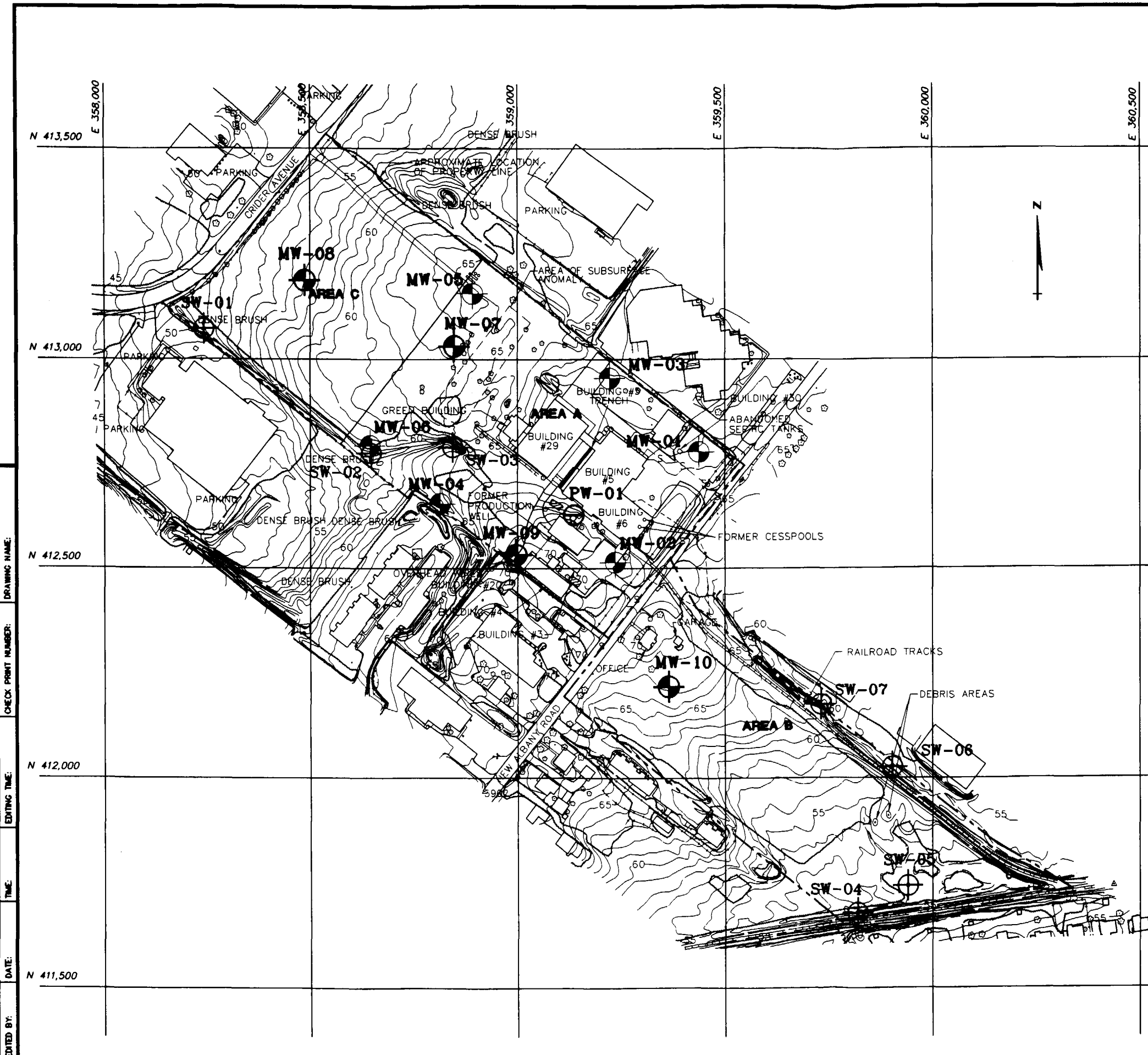
SURFACE WATER AND
GROUNDWATER SAMPLING LOCATIONS

DRAWING NUMBER
09.0801461.013
FIGURE 10

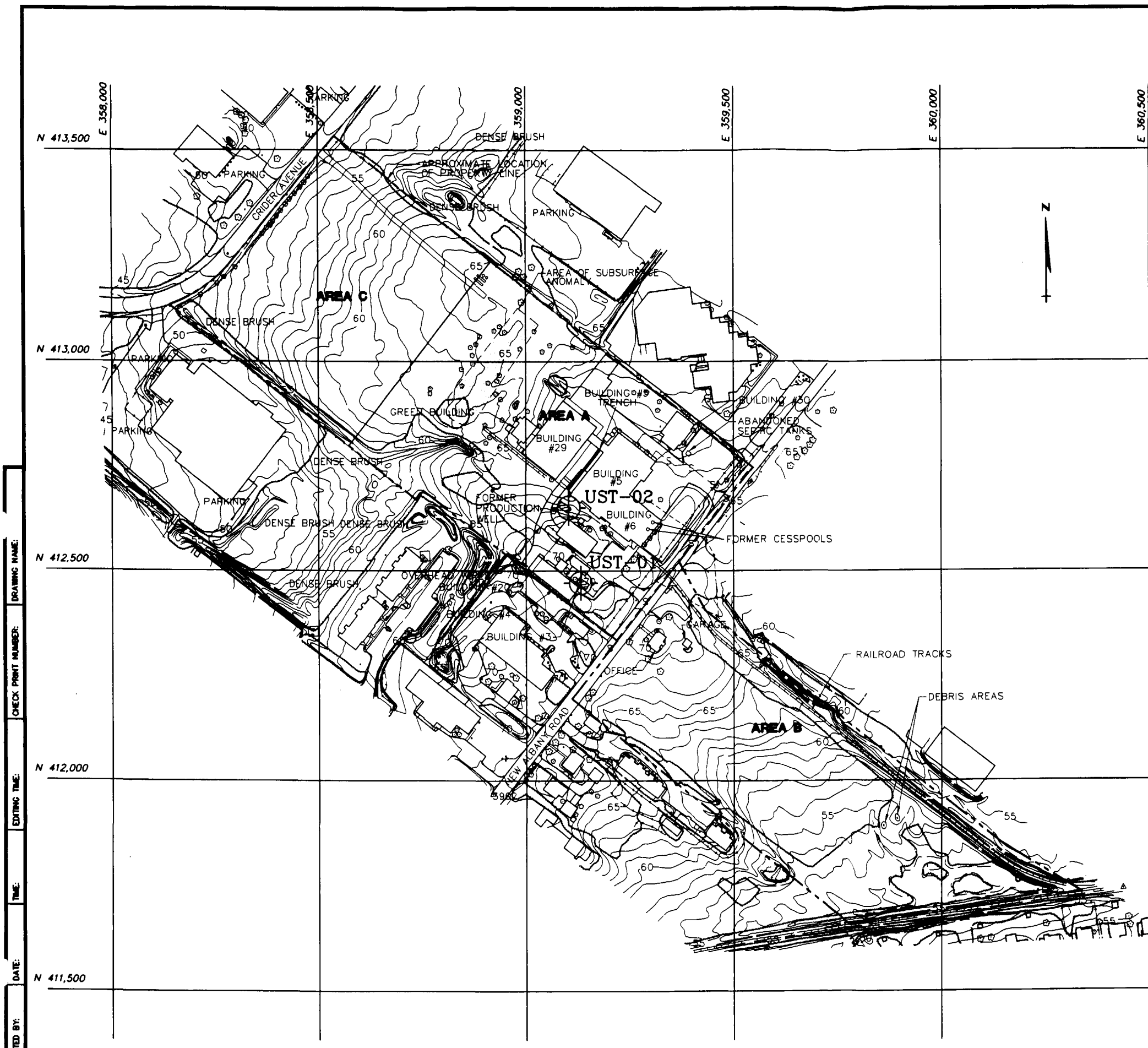
ISSUE DATE:
5/1/95

DATE

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090



ED BY: DATE: TIME: EDITING TIME: CHECK PRINT NUMBER: DRAWING NAME:



LEGEND:

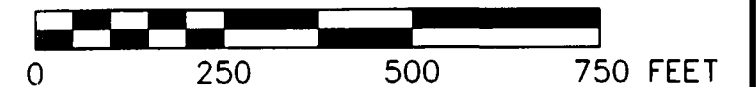
302492

- FENCE
- TREELINE
- - - SANITARY SEWER DRAIN LINE
- - - STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- GROUND SURFACE ELEVATION CONTOUR
- - - PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE
- UST-01
- UNDERGROUND STORAGE TANK SAMPLE

NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE: 1" = 250'-0"	

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

UST SAMPLE LOCATIONS

DRAWING NUMBER
09.0801461.013
FIGURE 11

ISSUE DATE:
5/1/95

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

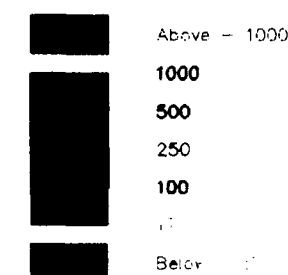
EDITED BY: DATE: TIME: EDITING TIME: CHECK PRINT NUMBER: DRAWING NAME:

302493

LEGEND:

- FENCE
- - - TREELINE
- - - SANITARY SEWER DRAIN LINE
- - - STORM SEWER DRAIN LINE
- ⊙ UNDERGROUND STORAGE TANK
- ~ GROUND SURFACE ELEVATION CONTOUR
- - - PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE

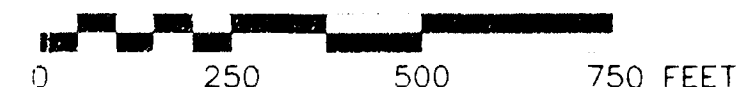
TOTAL CHLORINATED COMPOUNDS (mg/kg)



NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

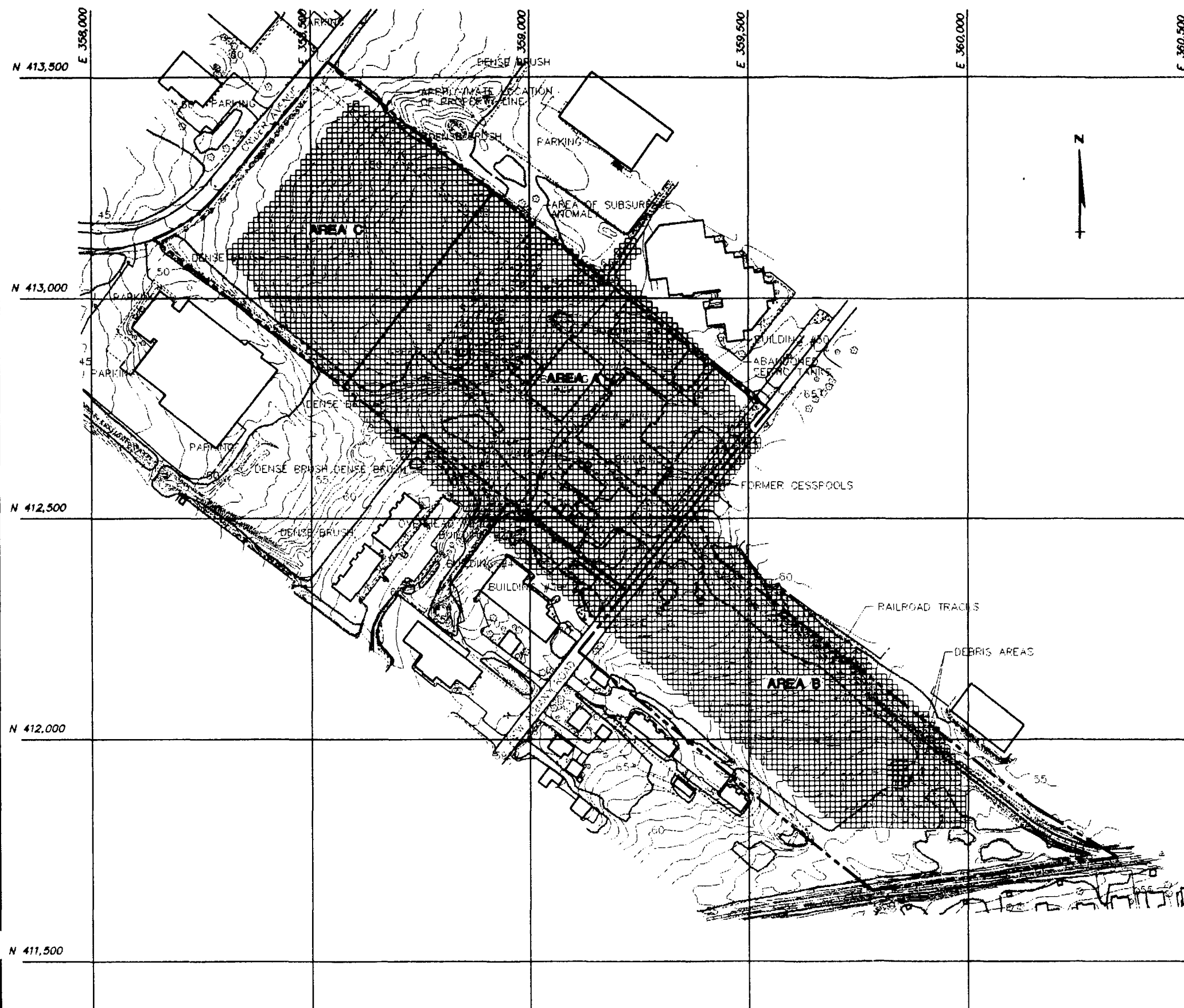
PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

SURFACE SOIL DISTRIBUTION OF
TOTAL CHLORINATED COMPOUNDS

DRAWING NUMBER
09.0601461.013
FIGURE 12

ISSUE DATE:
5/1/95

DATE
8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090



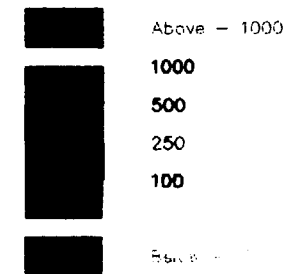
DRAWING MAN: CHECK PRINT NUMBER: EDITING TIME: TIME: ENTERED BY:

302494

LEGEND:

- FENCE
- TREELINE
- SANITARY SEWER DRAIN LINE
- STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- GROUND SURFACE ELEVATION CONTOUR
- PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE

TOTAL CHLORINATED COMPOUNDS (mg/kg)



NOTES:

- ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



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REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

SUBSURFACE (1-2 FOOT) DEPICTION OF
TOTAL CHLORINATED COMPOUNDS

DRAWING NUMBER
09.0901461.013
FIGURE 13

ISSUE DATE:
5/1/95

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

DATE

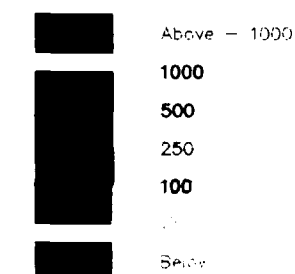
DESIGNED BY: _____
CHECKED BY: _____
DRAWING NUMBER: _____
EXTENDING TIME: _____
TIME: _____
EDITED BY: _____

LEGEND:

302495

- FENCE
- - - TREELINE
- - - SANITARY SEWER DRAIN LINE
- - - STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- 60 — GROUND SURFACE ELEVATION CONTOUR
- - - PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE

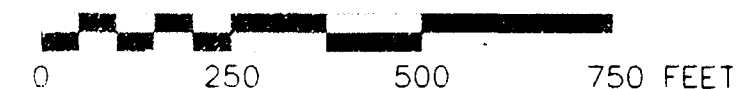
TOTAL CHLORINATED COMPOUNDS (mg/kg)



NOTES:

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



△			
△			
△			
REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD:	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

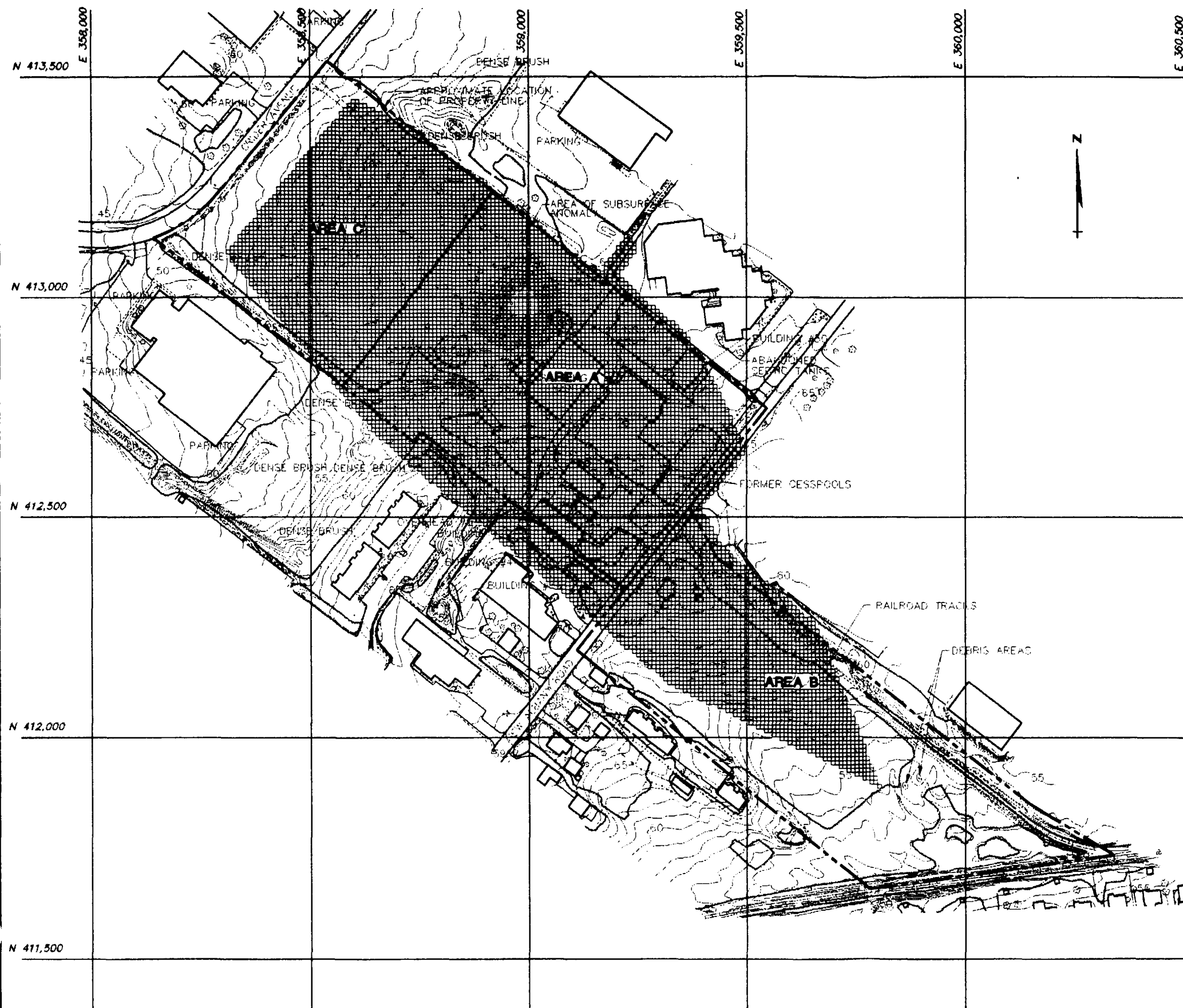
SUBSURFACE (2-4 FOOT) DEPICTION OF
TOTAL CHLORINATED COMPOUNDS

DRAWING NUMBER
09.0801461.013
FIGURE 14

ISSUE DATE:
5/1/95

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

DATE



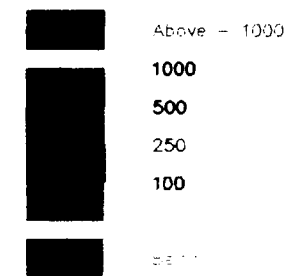
EDITED BY: TIME: EXPIRATION DATE: CHECK PRINT NUMBER: DRAWING NAME:

LEGEND

302496

- FENCE
- - - TREE LINE
- + - SANITARY SEWER DRAIN LINE
- - - STORM SEWER DRAIN LINE
- ⊗ UNDERGROUND STORAGE TANK
- 50 — GROUND SURFACE ELEVATION CONTOUR
- - - PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE

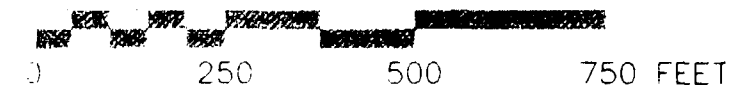
TOTAL CHLORINATED COMPOUNDS (mg/kg)



NOTES

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



△			
△			
△			
REV #	DATE	DESCRIPTION	APPD

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD.	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

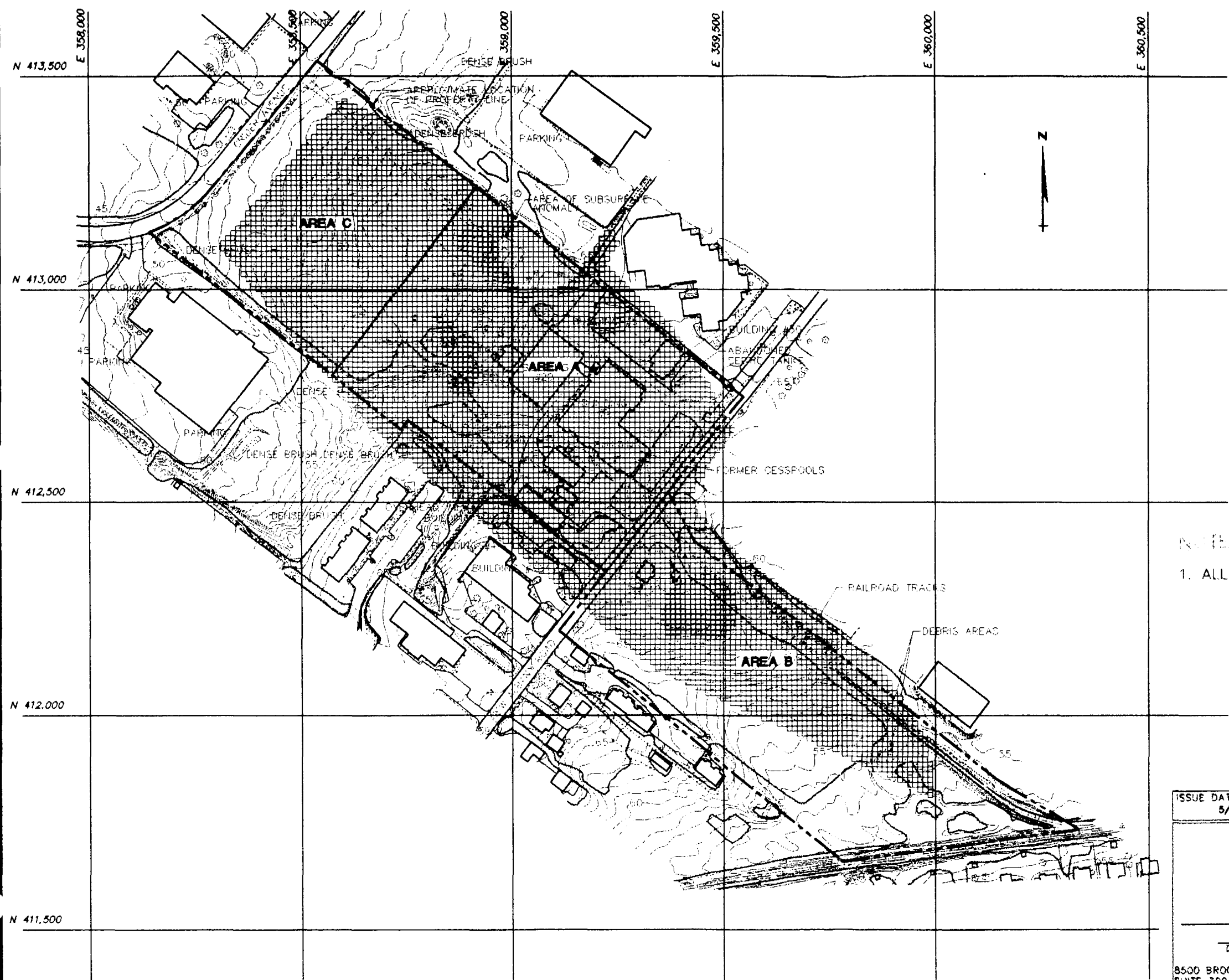
PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

SURFACE DISTRIBUTION OF DDD,DDE,
AND DDT USING CLP DATA

DRAWING NUMBER
09.0601461.013
FIGURE 15

ISSUE DATE:
5/1/95

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090



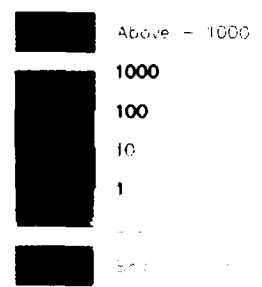
DRAWING NAME: _____
 CHECK PRINT NUMBER: _____
 EXPIRATION DATE: _____
 TIME: _____
 EDITED BY: _____

302497

LEGEND

- FENCE
- TREELINE
- SANITARY SEWER DRAIN LINE
- STORM SEWER DRAIN LINE
- UNDERGROUND STORAGE TANK
- GROUND SURFACE ELEVATION CONTOUR
- PROPERTY LINE (APPROXIMATE LOCATION)
- AREA DIVIDE LINE

DIELDRIN (mg/kg)



NOTES

1. ALL ELEVATIONS IN FEET ABOVE MEAN SEA LEVEL (FT-MSL).

SCALE



△			
△			
△			
REV #	DATE	DESCRIPTION	APPD

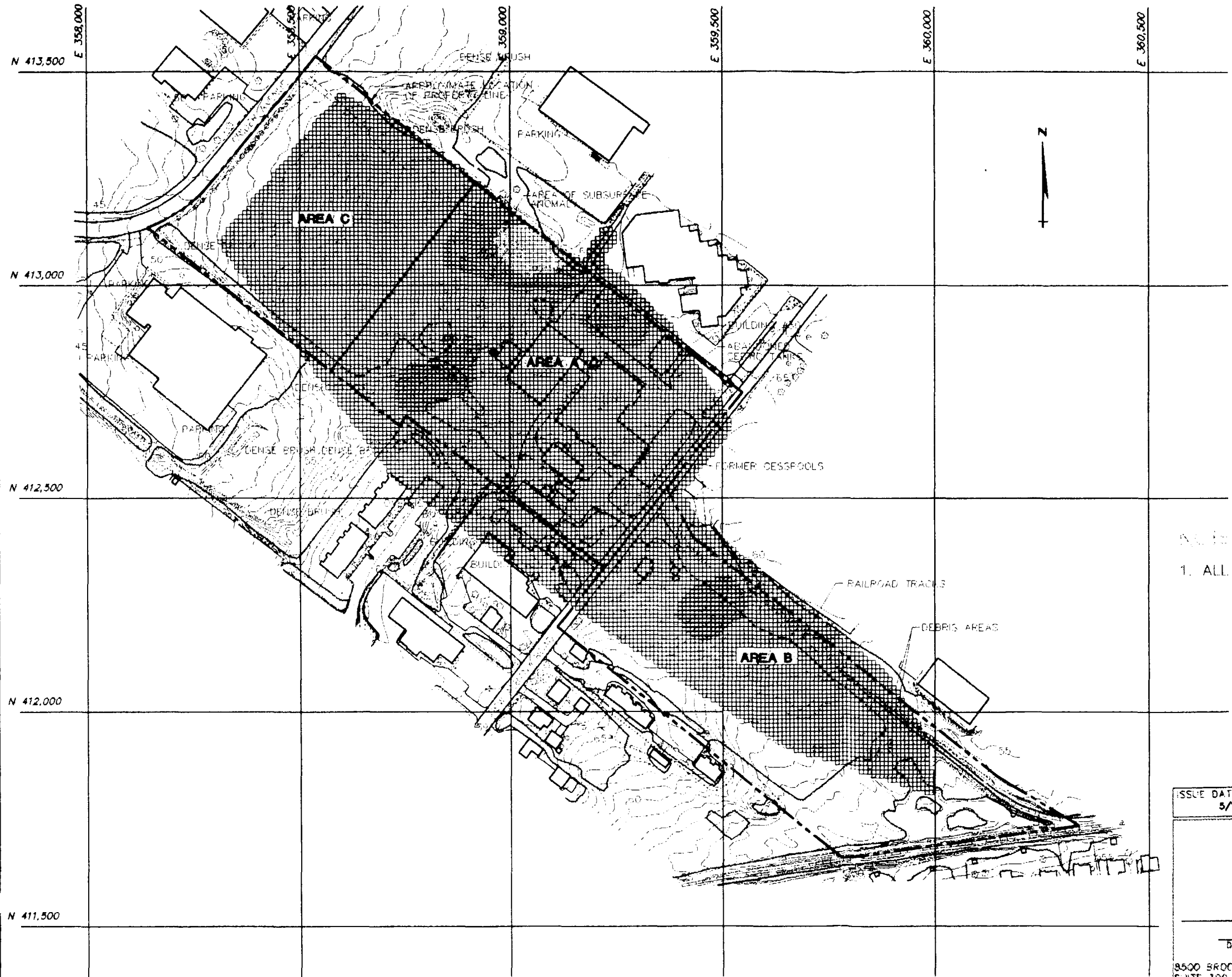
PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



DRAWN: PAR	DATE: 3/24/95
CHKD.	DATE:
APPD:	DATE:
SCALE:	1" = 250'-0"

PHASE II SITE INVESTIGATION REPORT
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

SURFACE DISTRIBUTION OF DIELDRIN
DRAWING NUMBER 09.0801481.013
FIGURE 16



ISSUE DATE:
5/1/95

8500 BROOKTREE ROAD
SUITE 300
WEXFORD, PA. 15090

DATE: _____
ENTERED BY: _____
TIME: _____
CHECK POINT NUMBER: _____
DRAWING NAME: _____

APPENDIX A

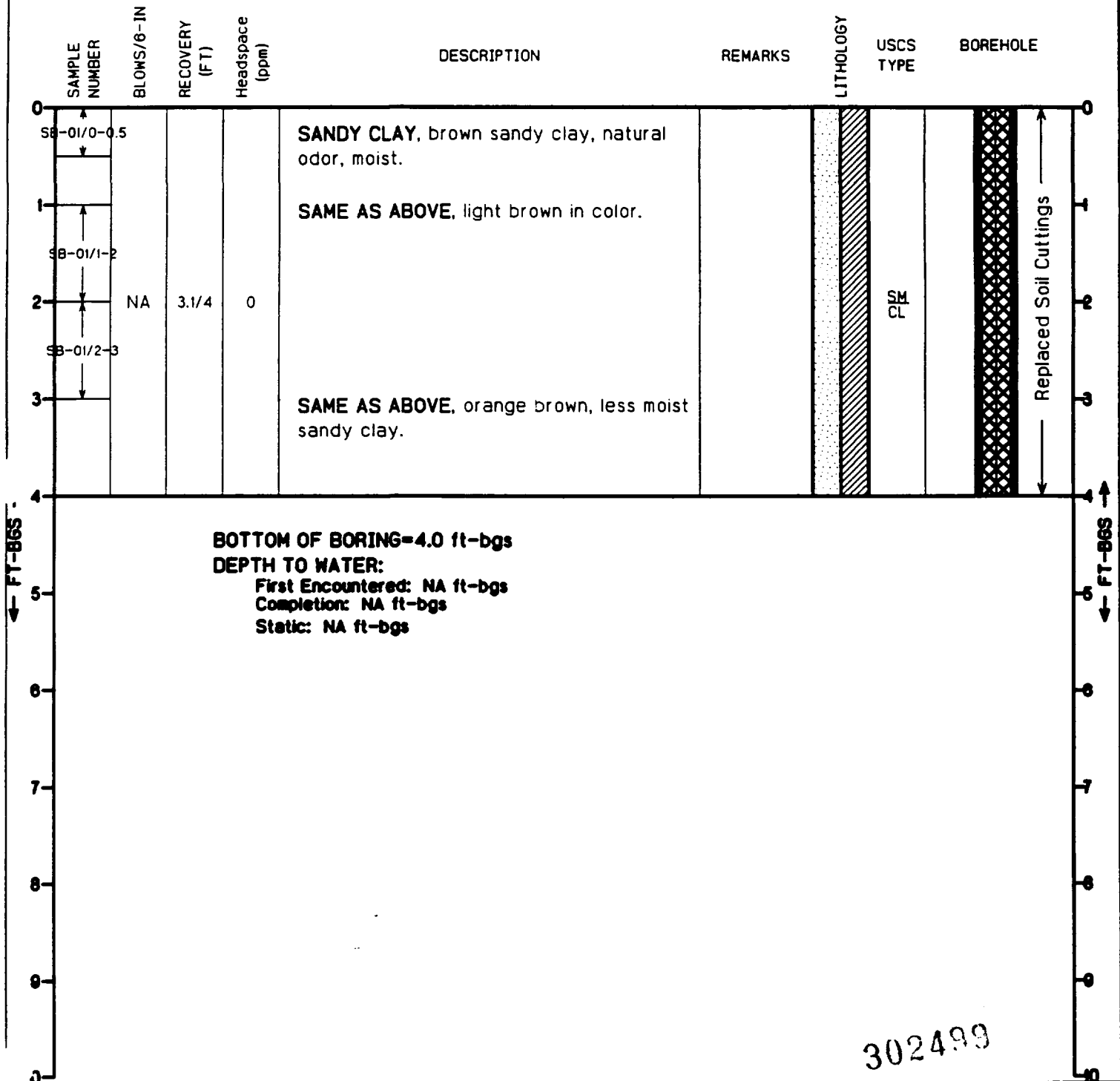
SOIL BORING/MONITORING WELL/PIEZOMETER/TEST PIT LOGS

302498

LOG OF BORING: SB-01

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 64.20
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413251.8477 / E 358858.5058	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

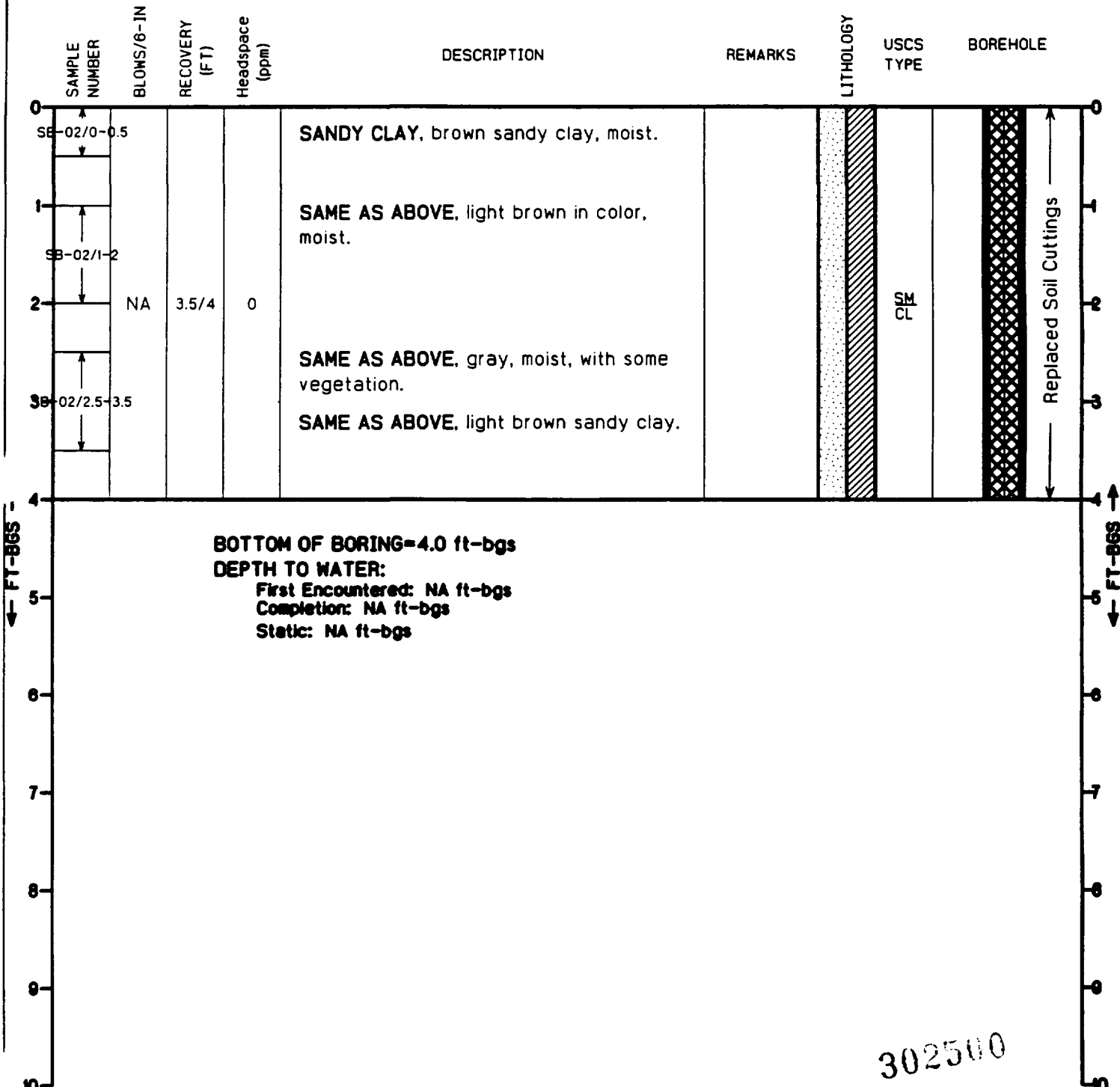
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-02

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 62.49
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: JAB
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413084.1592/ E 358703.4338	



SILT
CLAY
SAND



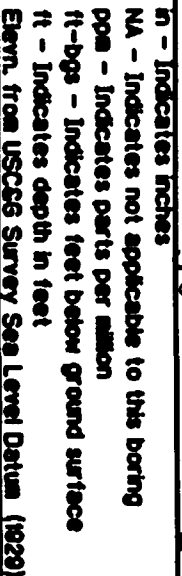
REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 60.60
DRILLERS: Tom
GEOLOGIST: J. Boredeau
CONSULTANT: McLaren/Hart



Page 1 of 1

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 59.10
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



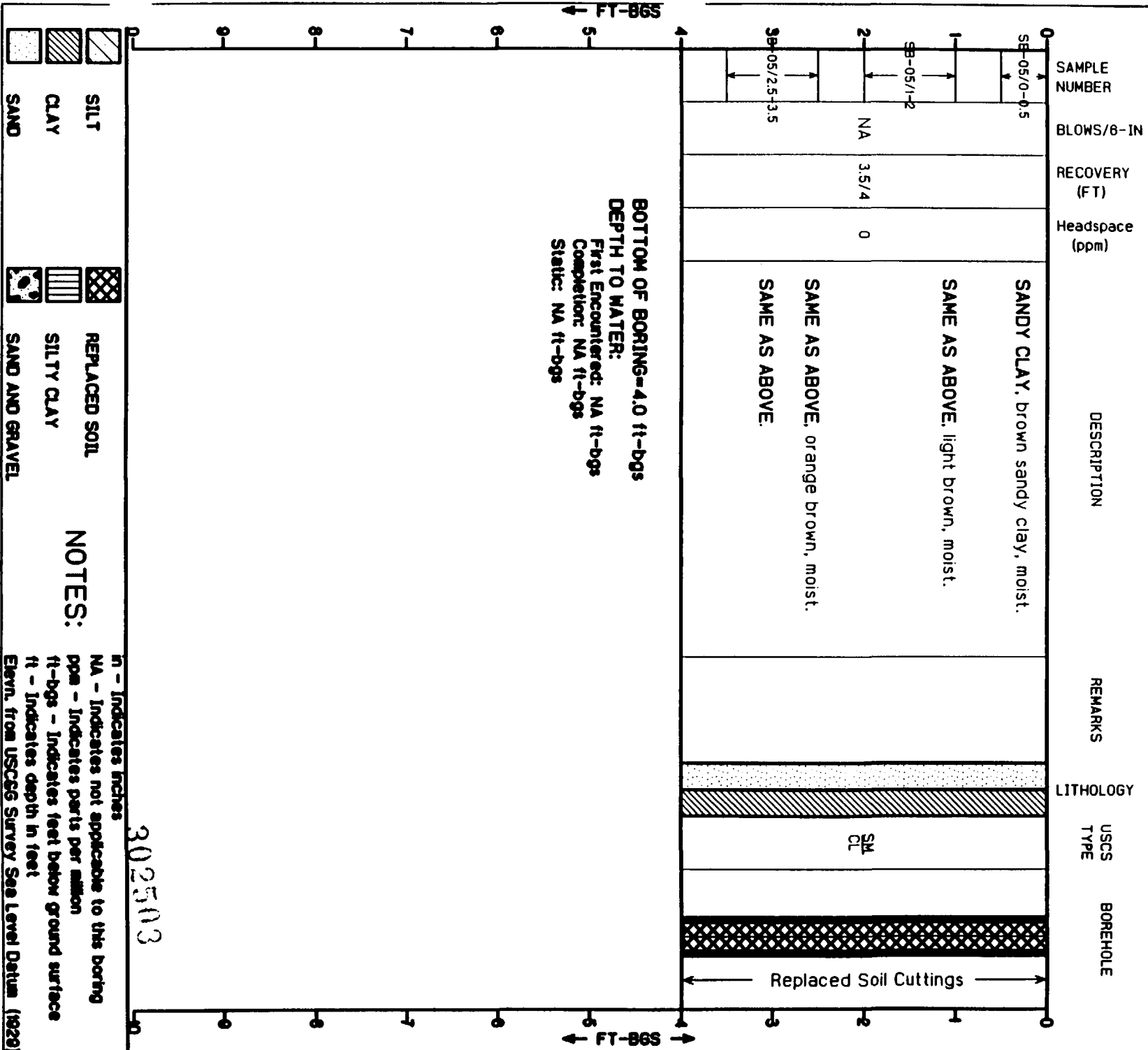
NOTES:

n - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (19

LOG OF BORING: SB-05

Page 1 of 1

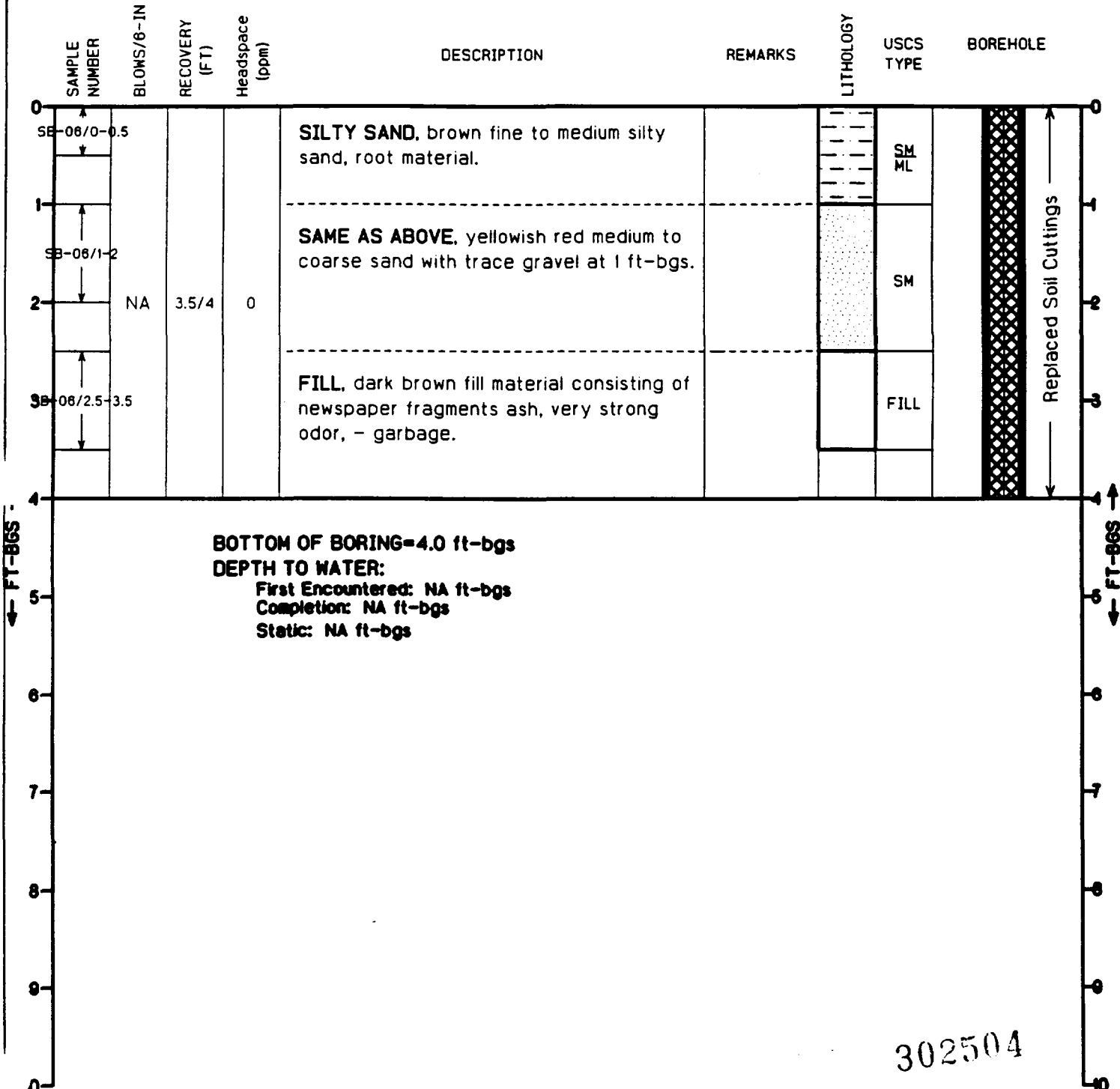
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 60.20
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 51294.5915 / E 358570.8011	



LOG OF BORING: SB-06

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 65.40
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412989.0989 / E358990.5177	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

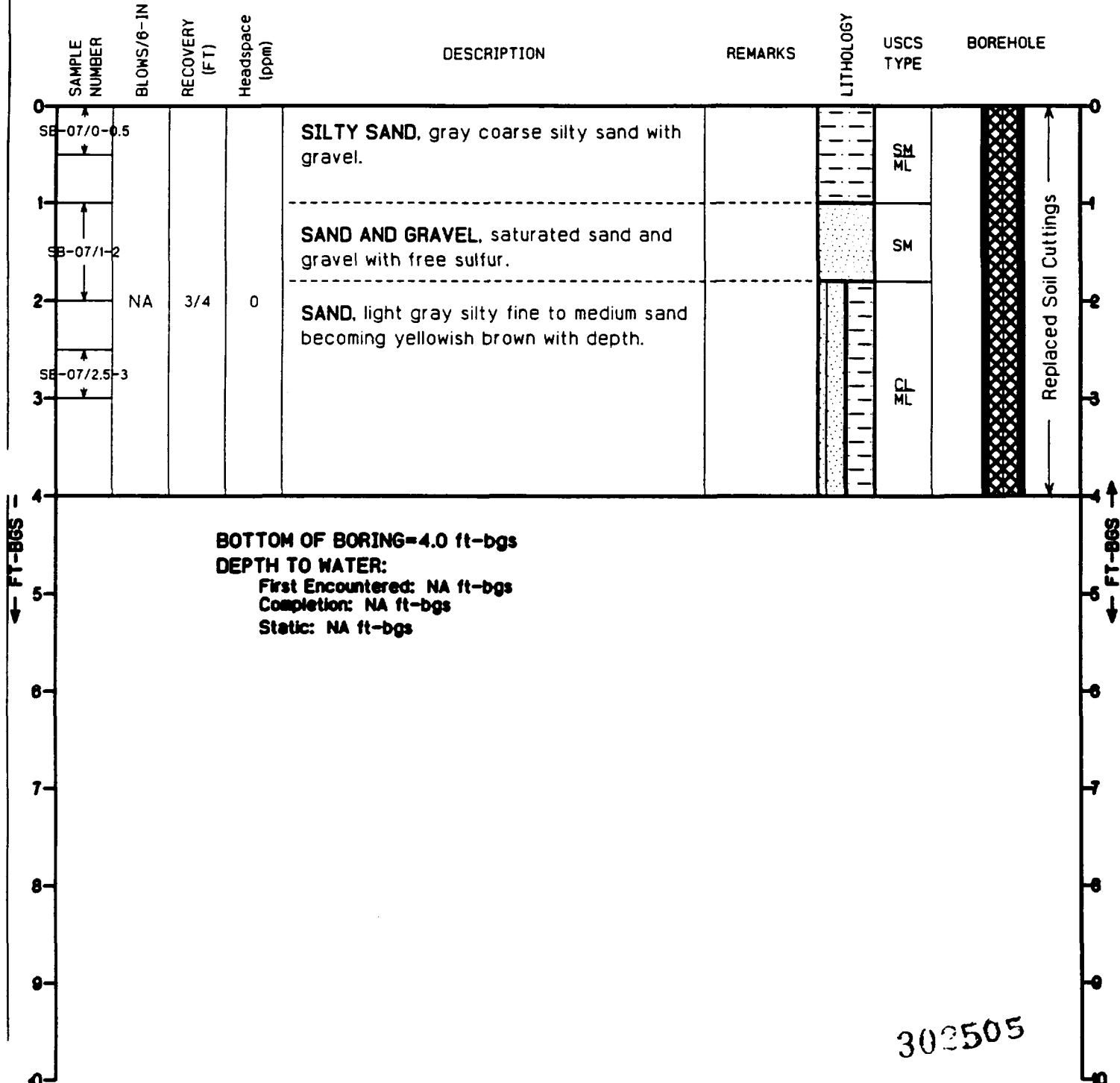
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-07

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 85.08
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413078.6304 / E 359047.5833	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

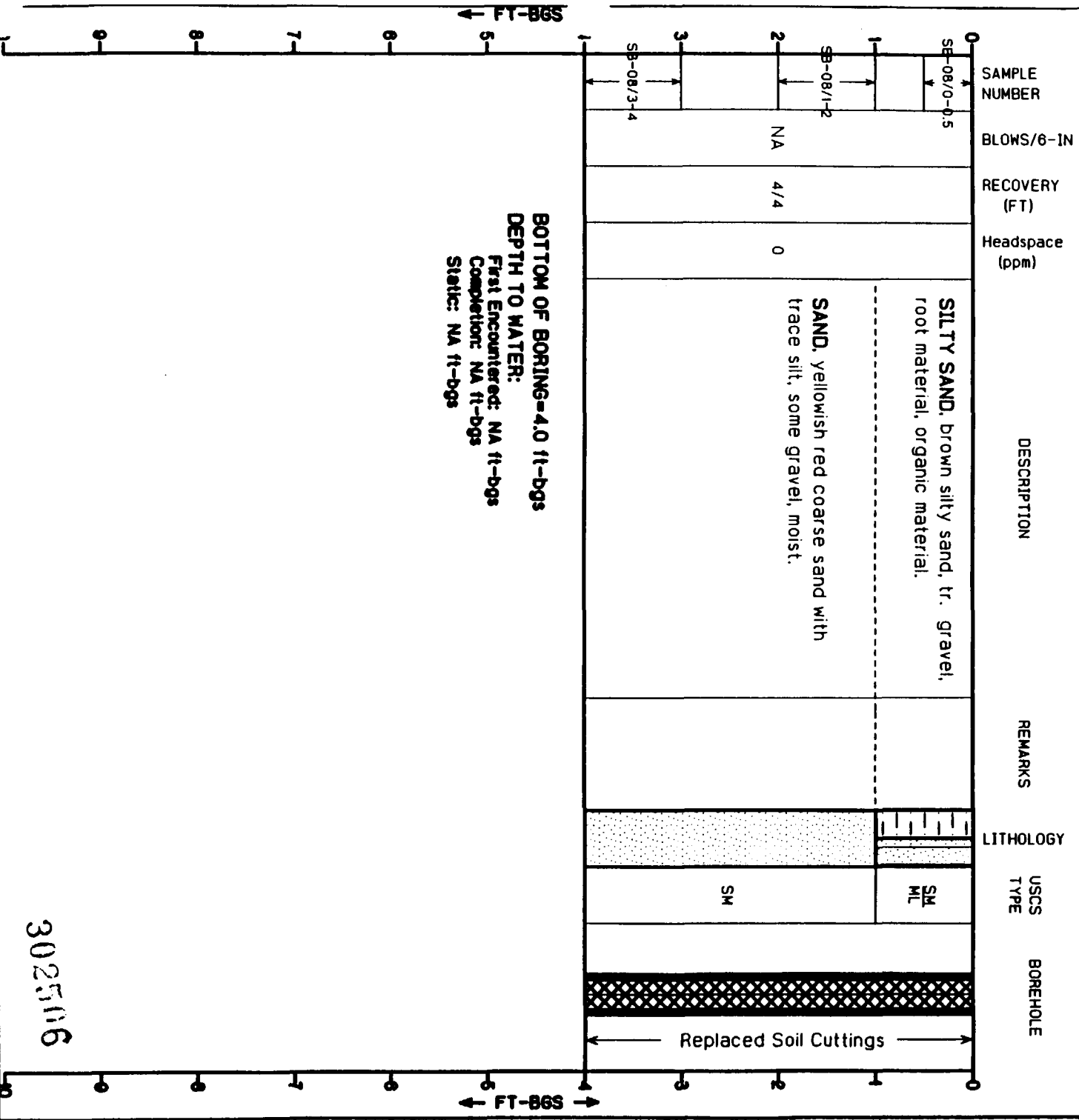
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-08

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 85.08
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 43076.6304 / E 359047.5833	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

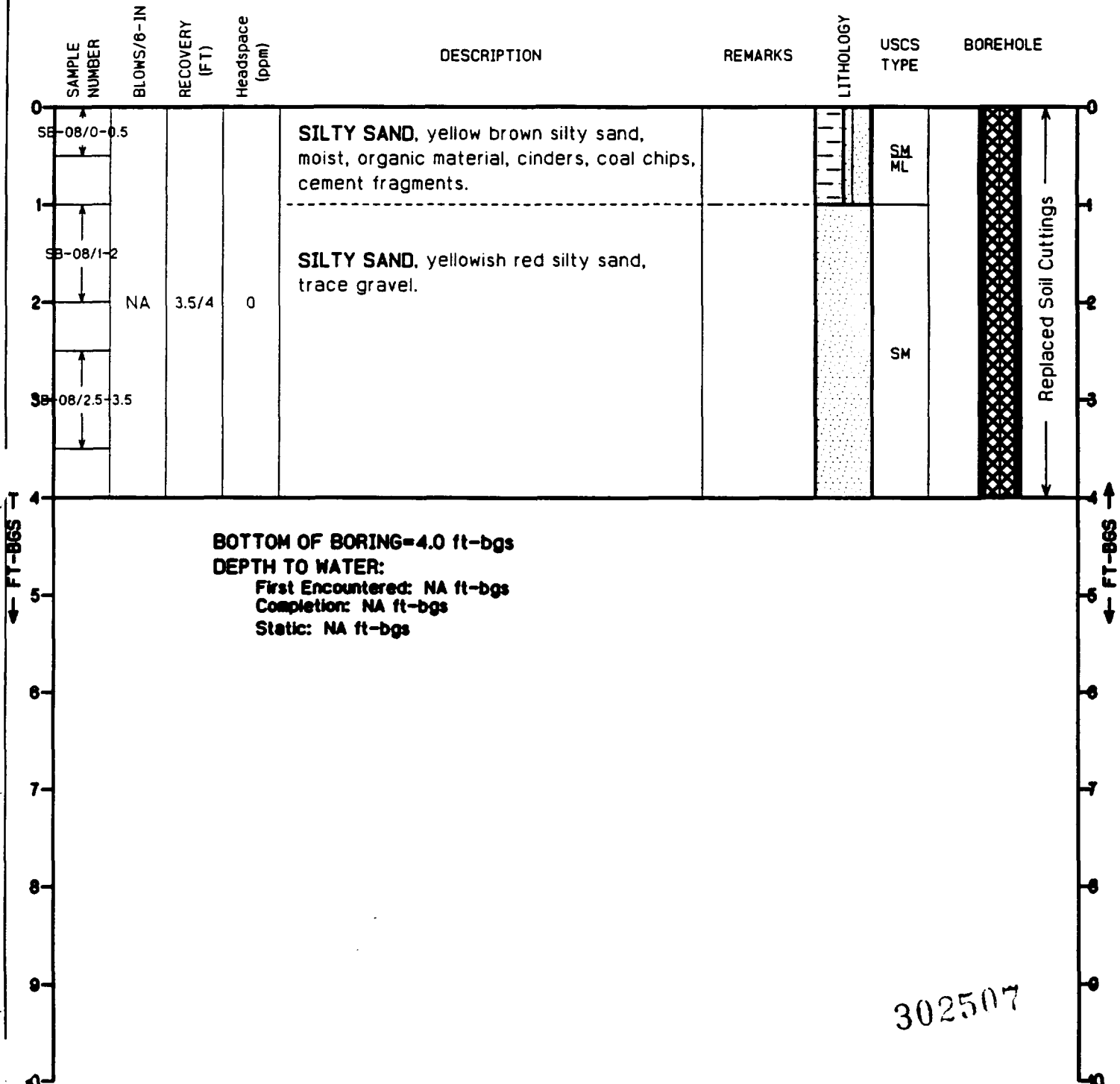
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-09

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Polyester Sleeves	GROUND SURF. ELEV. (ft-msl): 67.90
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 1-1/4-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412967.0227 / E 359096.3780	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG6 Survey Sea Level Datum (1929)

Page 1 of 1

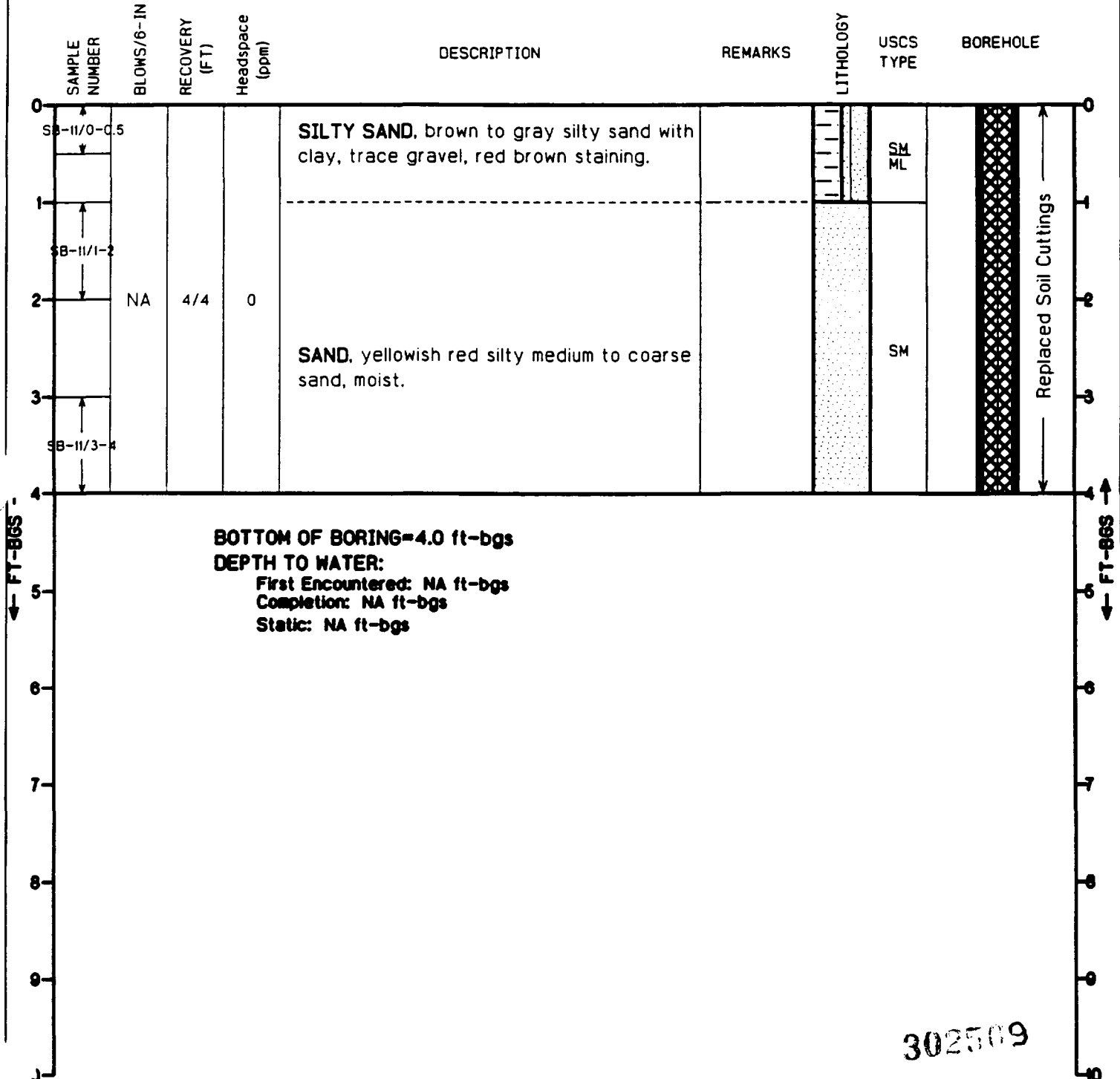
TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 68.20
DRILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



LOG OF BORING: SB-11

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 67.20
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412983.7839 / E 359239.5750	



SILT
CLAY
SAND



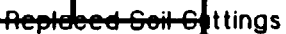
REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 0.5
GROUND SURF. ELEV. (ft-msl): 69.20
DRILLERS: JAB
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



Static: NA fit-bgs

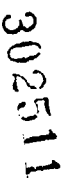
← FT-BGS

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million

n - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elem. from USCGS Survey Sea Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 2.5
GROUND SURF. ELEV. (ft-msl): 62.60
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



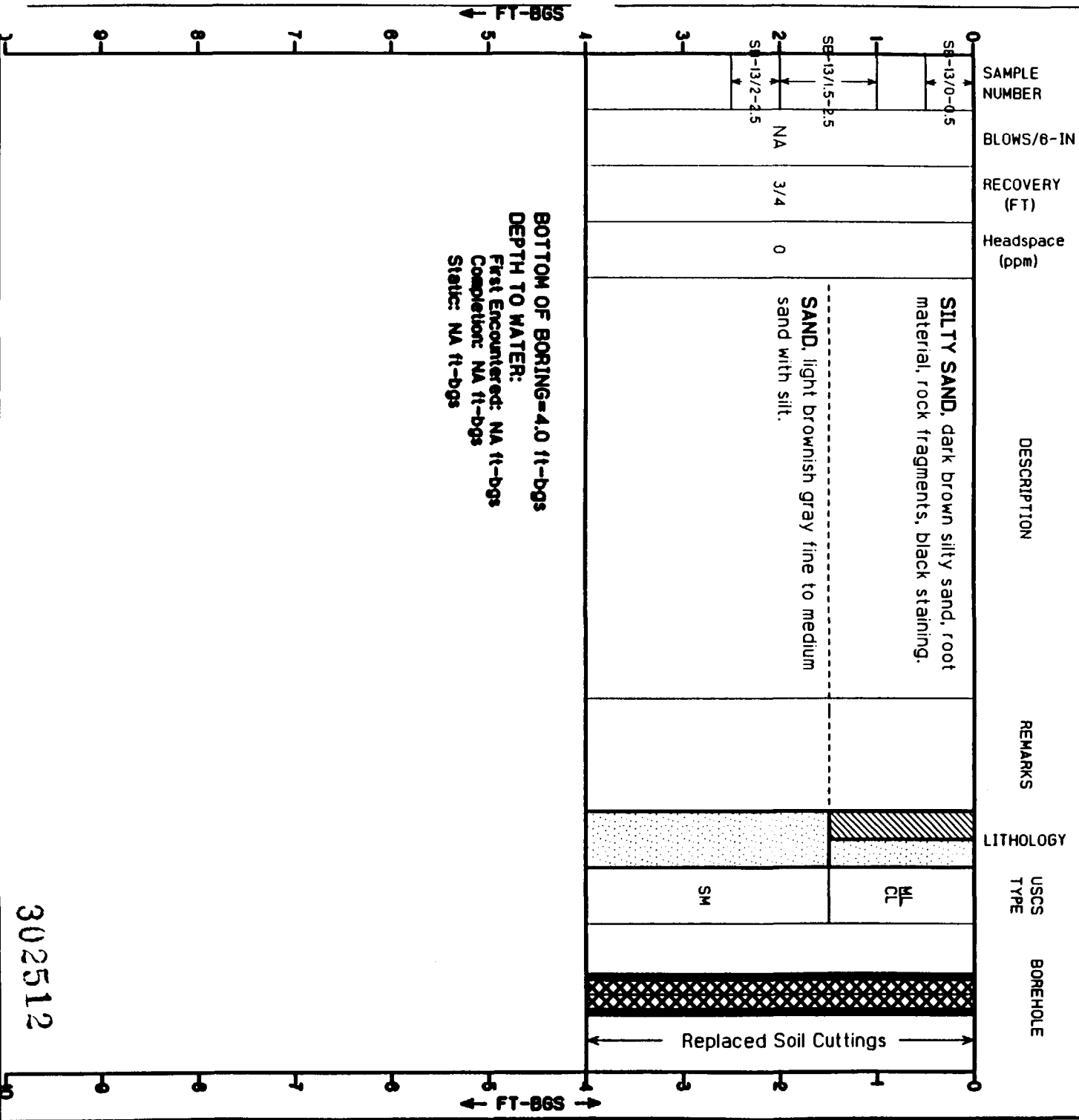
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG6 Survey See Level Datum (1929)

LOG OF BORING: SB-13

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Polyester Sleeves	GROUND SURF. ELEV. (ft-msl): 84.30
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412801.2375 / E 358893.5158	



SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

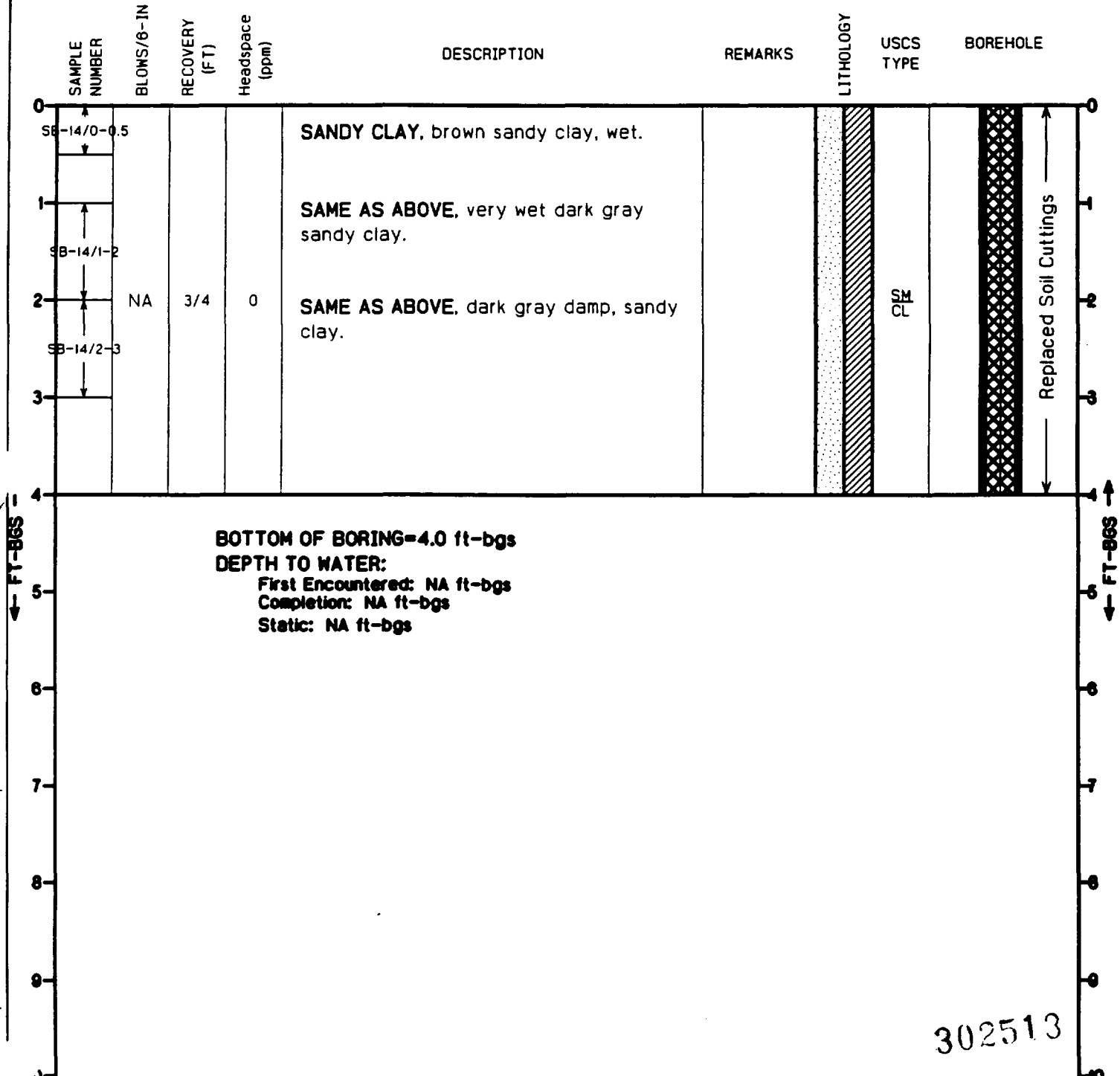
LOG OF BORING: SB-14

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/07/94
DATE COMPLETED: 12/07/94

DRILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 2-inch
DRILLING BIT: Drive Point
NORTHING/EASTING: N 412699.1319 / E 358831.8428

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 82.80
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGG Survey Sea Level Datum (1929)

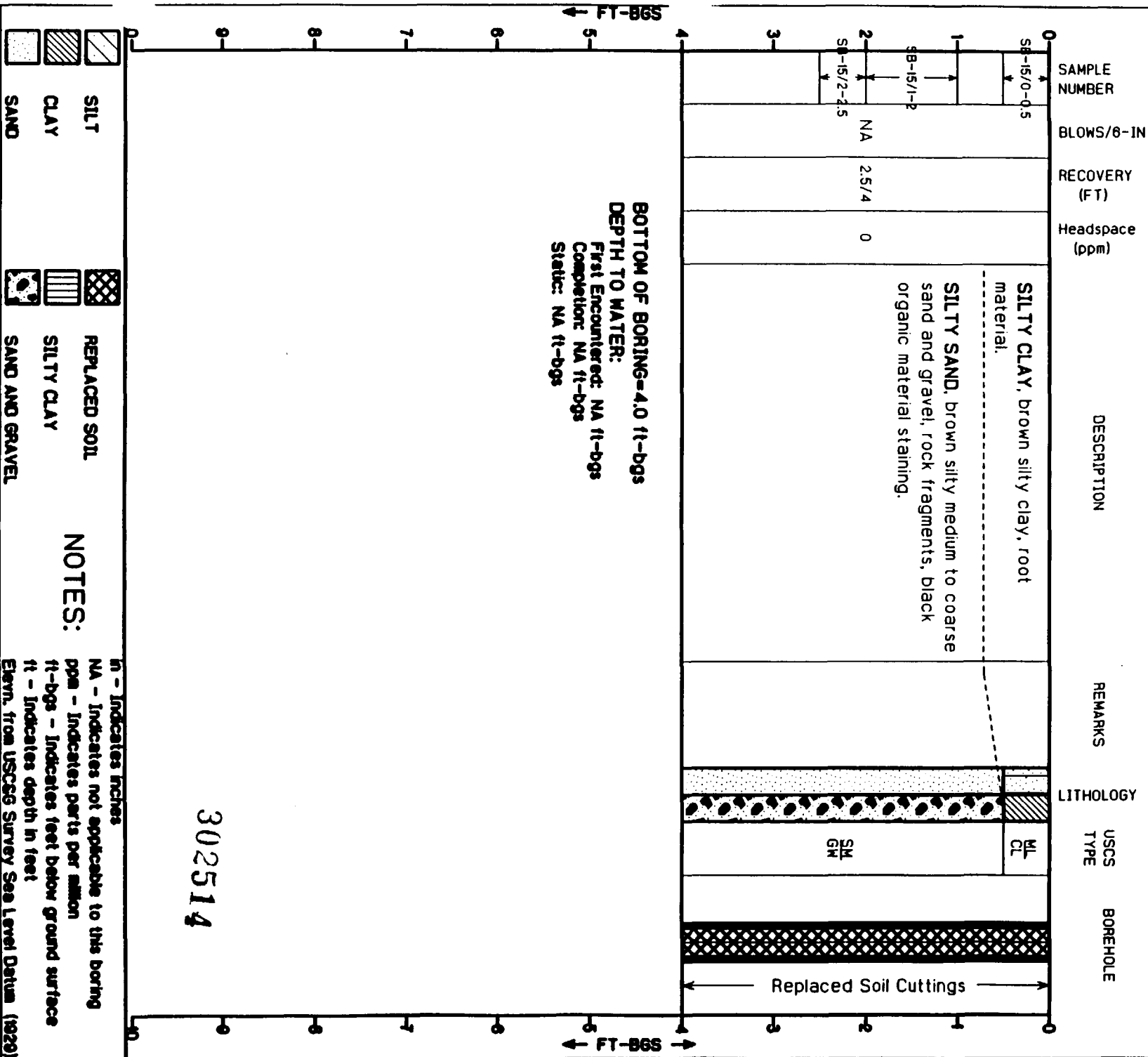
LOG OF BORING: SB-15

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801480.002
DATE STARTED: 12/07/94
DATE COMPLETED: 12/07/94

DRILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 2-inch
DRILLING BIT: Drive Point
NORTHING/EASTING: N 412834.4965 / E 358907.4270

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 66.60
DRILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



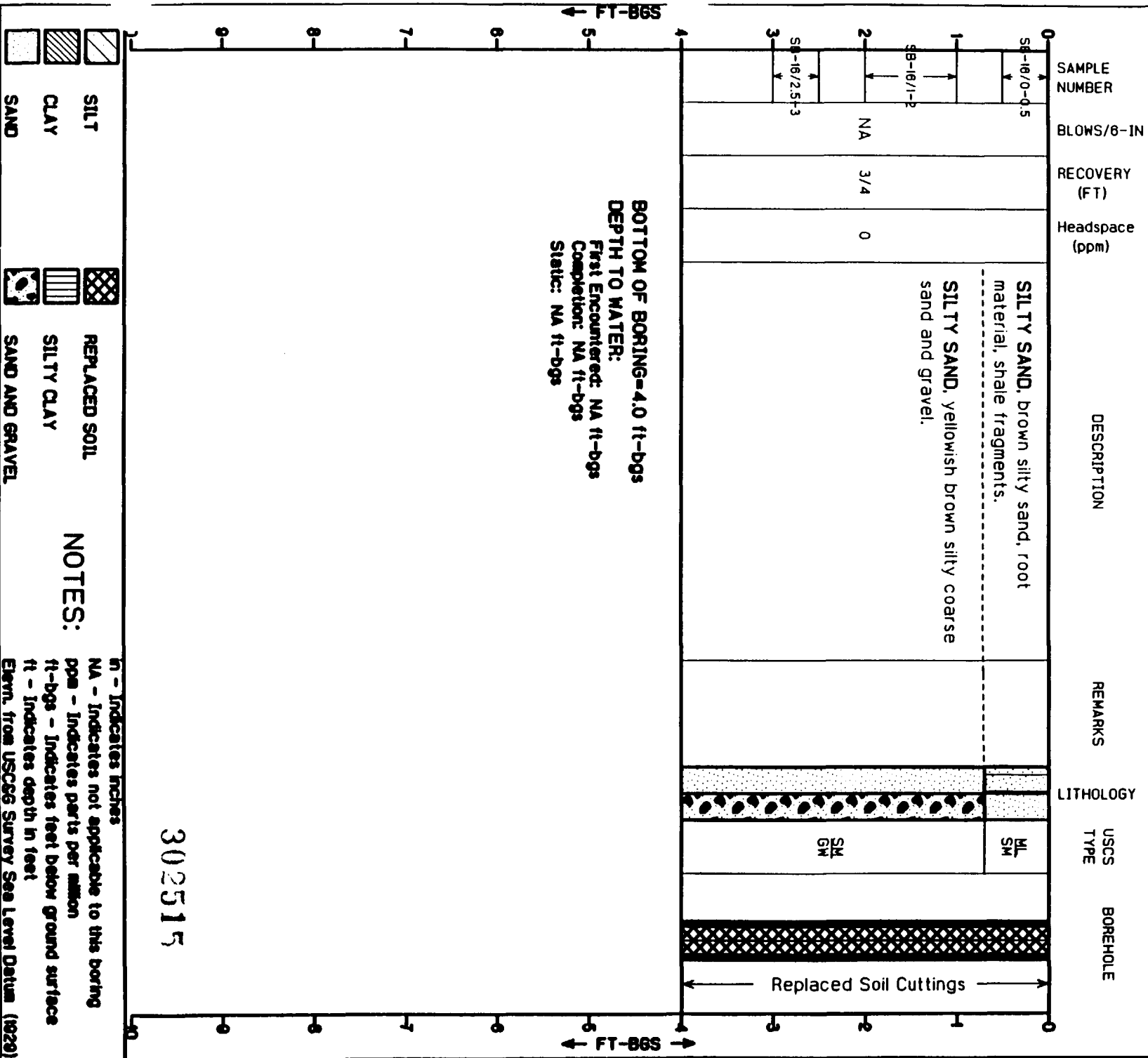
LOG OF BORING: SB-16

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/07/94
DATE COMPLETED: 12/07/94

DRILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DRILLING CO.: NCP Analytical
BOREHOLE/WEEL DIAMETER: 2-inch
DRILLING BIT: Drive Point
NORTHING/EASTING: N 412726.0838 / E 358956.3433

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 65.80
DRILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



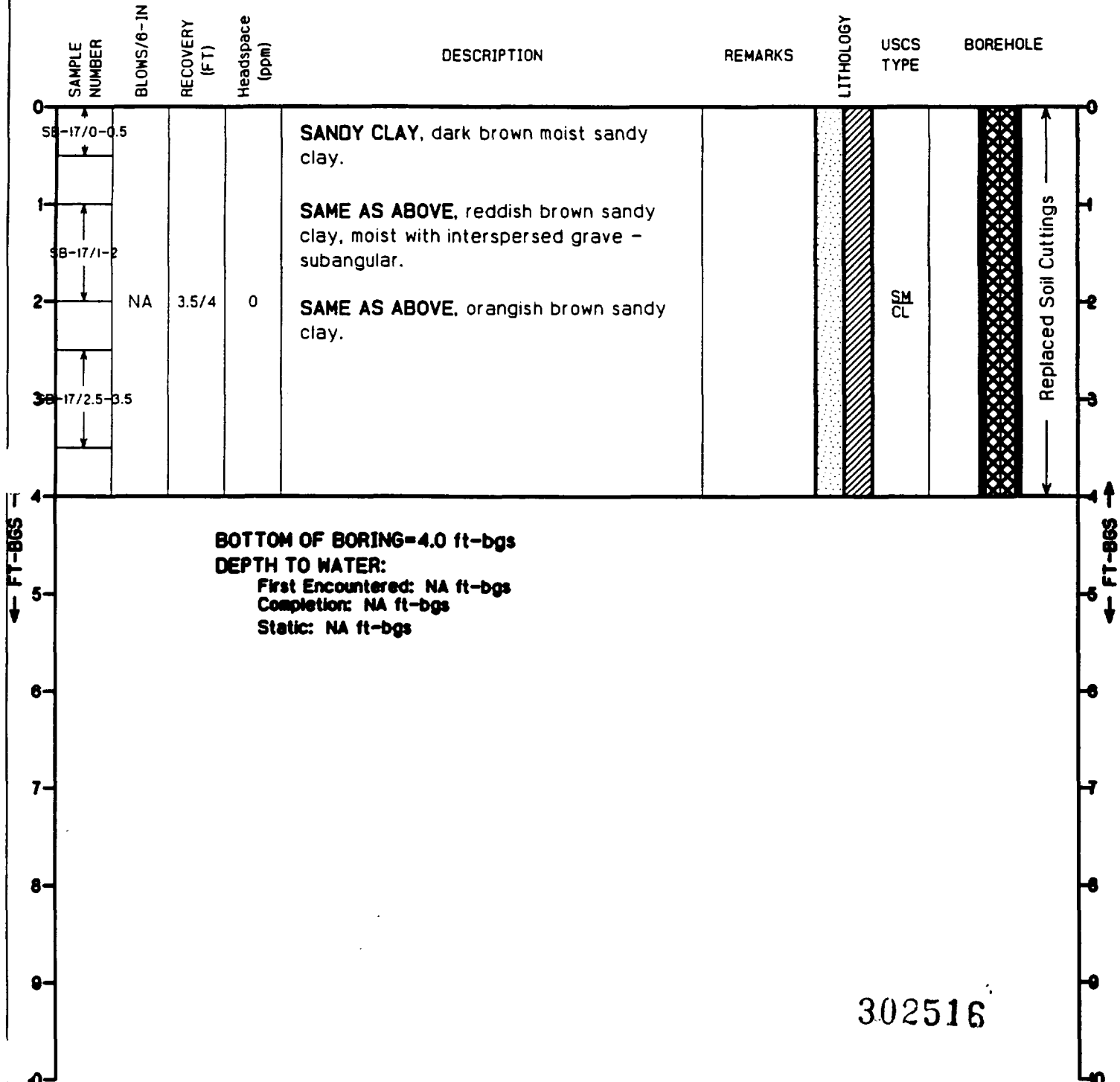
LOG OF BORING: SB-17

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/06/94
DATE COMPLETED: 12/06/94

DRILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 2-inch
DRILLING BIT: Drive Point
NORTHING/EASTING: N 412364.9012 / E 359303.265

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 69.60
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



SILT

CLAY

SAND



REPLACED SOIL

SILTY CLAY

SAND AND GRAVEL

NOTES:

in - Indicates inches

NA - Indicates not applicable to this boring

ppm - Indicates parts per million

ft-bgs - Indicates feet below ground surface

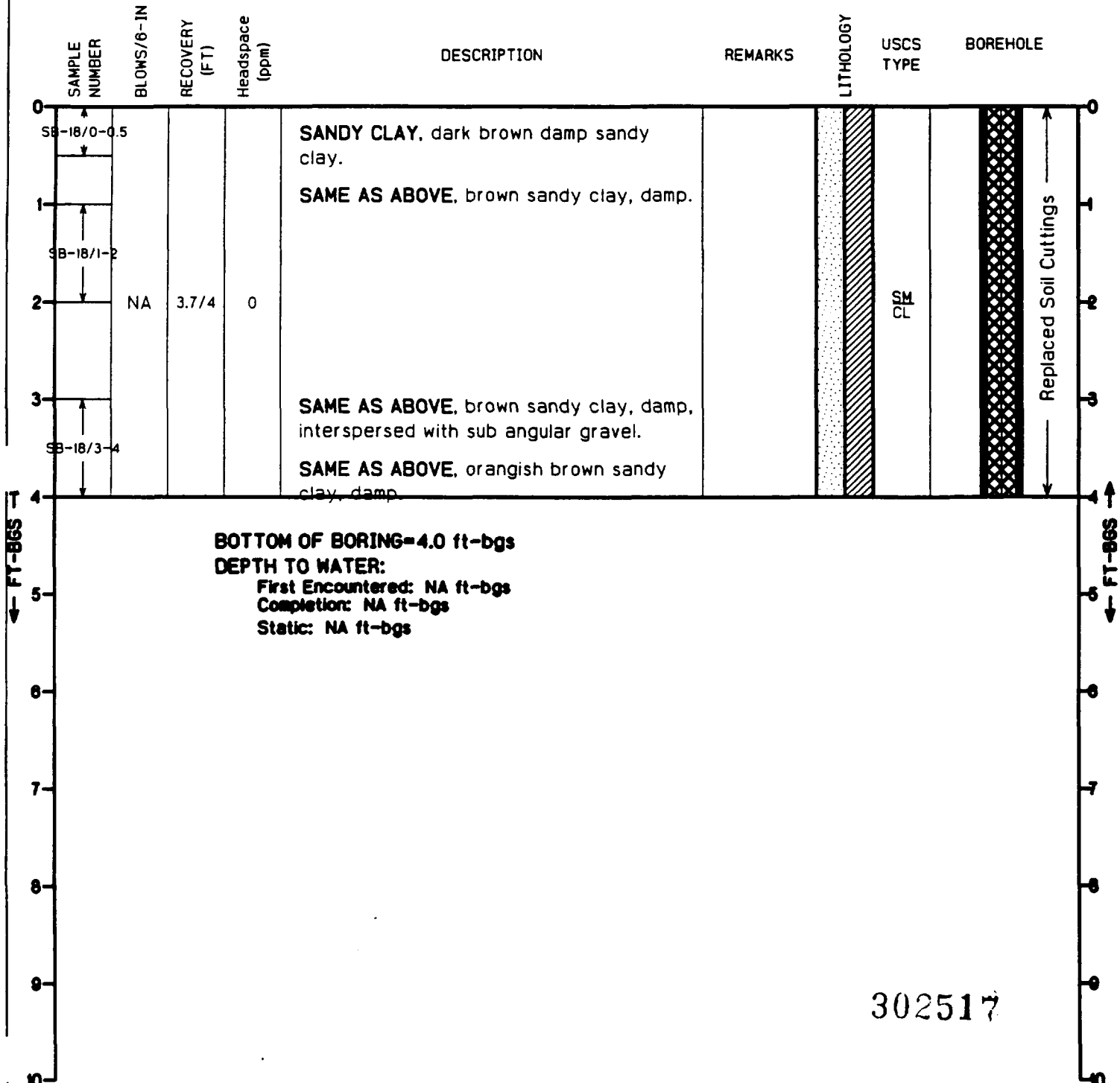
ft - Indicates depth in feet

Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-18

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 68.30
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/06/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/06/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412307.1822 / E 359335.9205	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

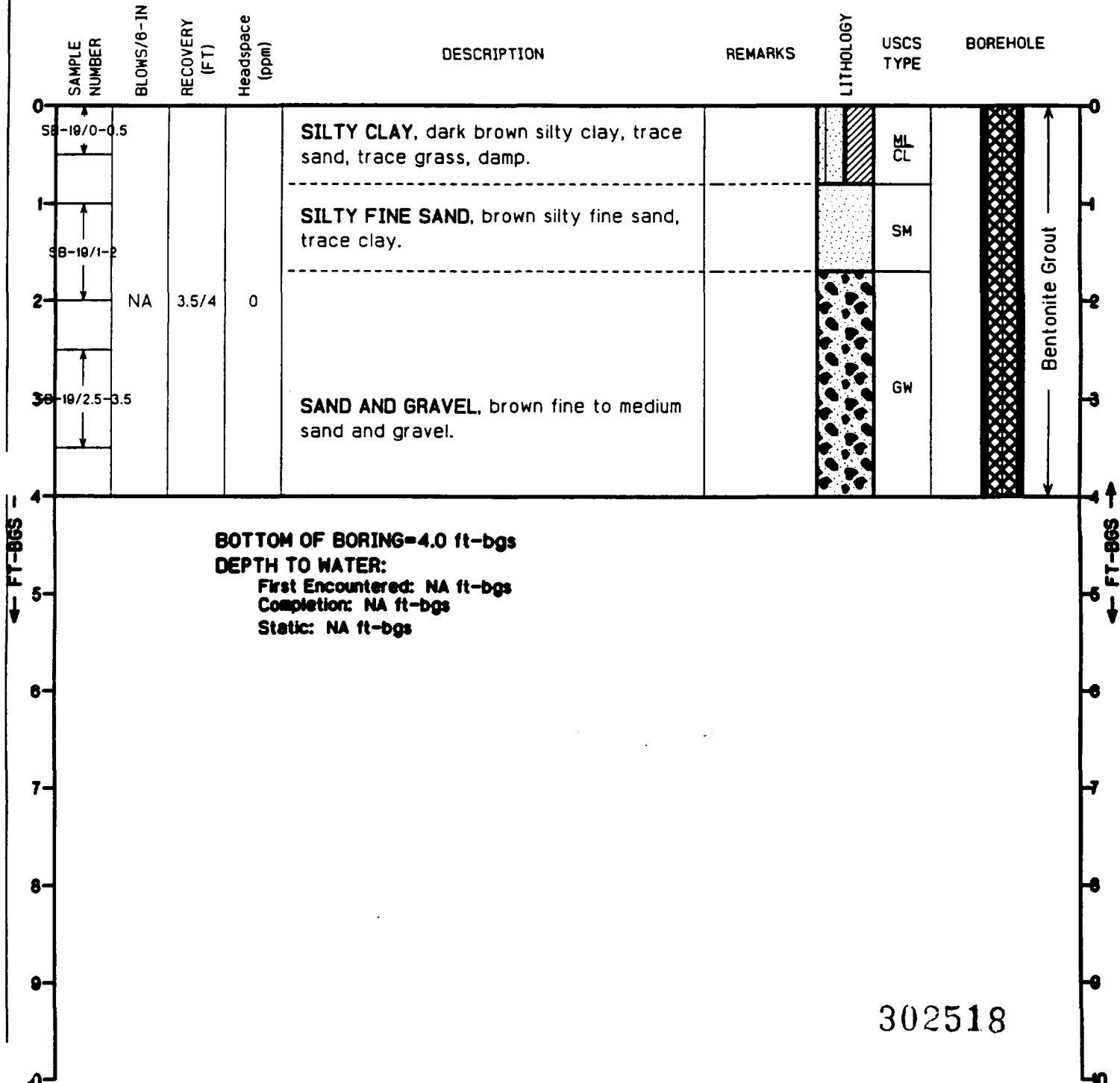
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-19

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 87.10
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412306.0327 / E 359446.615	



SILT
CLAY
SAND



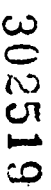
REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 65.10
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart

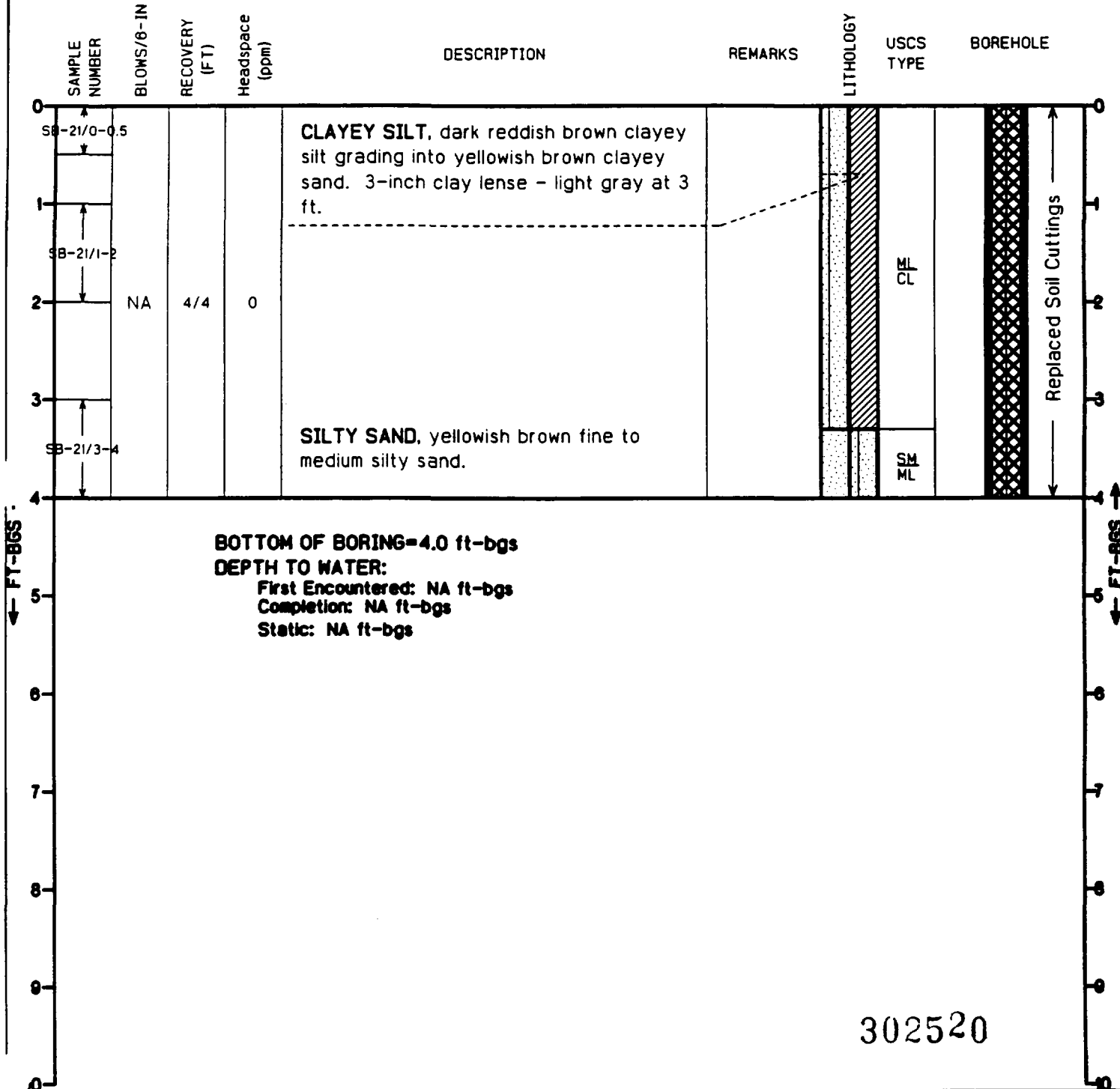


in - Indicates inches
 NA - Indicates not applicable to this boring
 pps - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-21

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 51.40
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413098.8229 / E 358298.8330	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

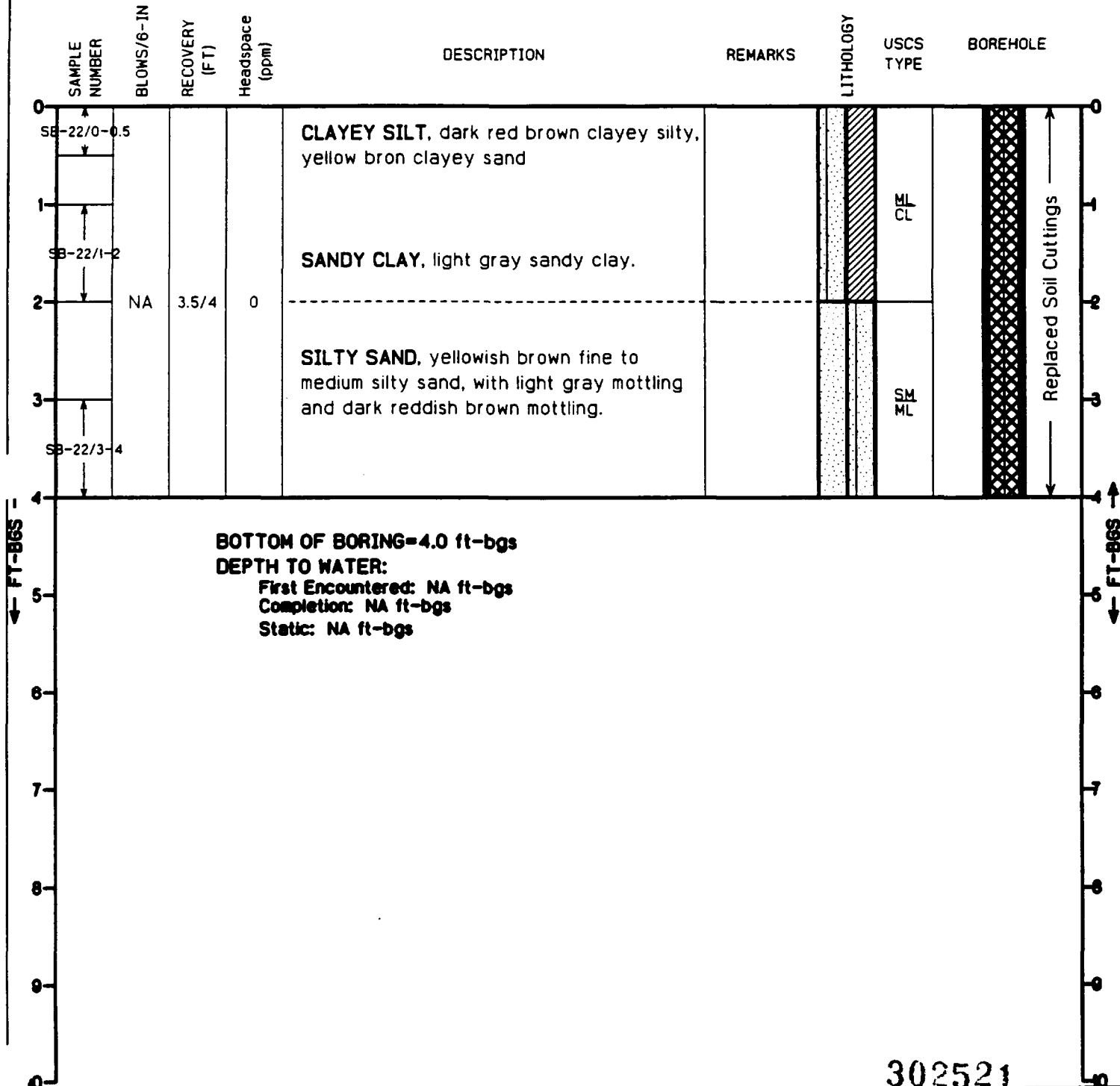
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-22

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 52.70
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413184.1191 / E 358369.8410	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

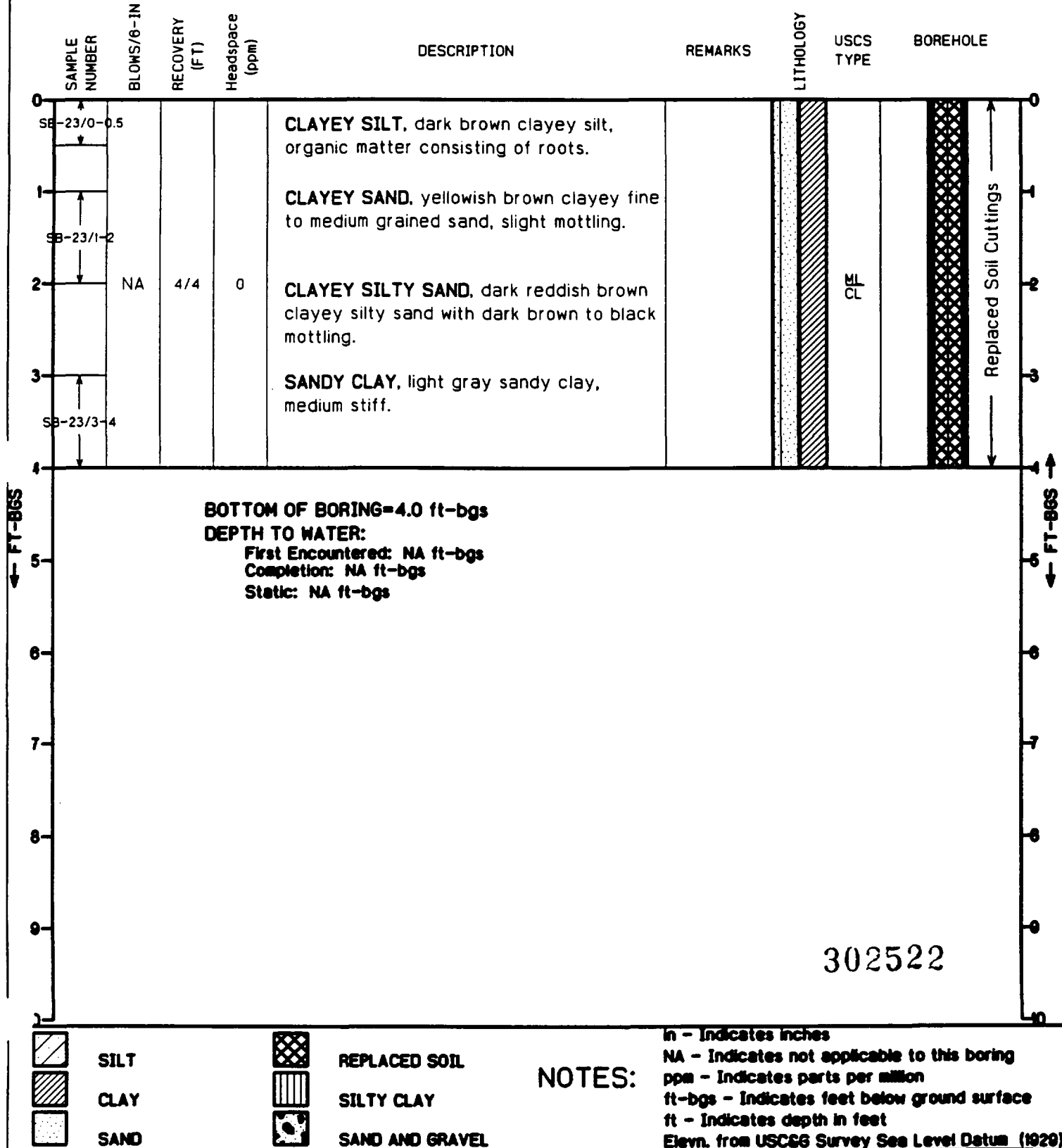
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-23

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 54.20
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413299.2255 / E 358465.4203	



LOG OF BORING: SB-24







Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801480.002 DATE STARTED: 12/05/94 DATE COMPLETED: 12/05/94	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/WEEL DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 413458.4599 / E 358598.7709	TOTAL BORING DEPTH (ft): 4.0 GROUND SURF. ELEV. (ft-msl): 54.00 DRILLERS: Tom GEOLOGIST: F. Coll CONSULTANT: McLaren/Hart
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SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-24/0-0.5								
1				SILTY SAND, dark brown to yellowish brown silty sand with root material grading into light gray clayey sand with dark gray reddish brown and dark gray mottling, moist, no odor.				
SB-24/1-2								
2	NA	4/4	0	CLAYEY SAND, dark reddish brown clayey sand, slightly moist.			SL CL	
3				SANDY CLAY, medium gray sandy clay, light orangish brown mottling.				
SB-24/3-4								
								Replaced Soil Cuttings

BOTTOM OF BORING--4.0 ft-bgs
DEPTH TO WATER:
 First Encountered: NA ft-bgs
 Completion: NA ft-bgs
 Static: NA ft-bgs

302523

	SILT		REPLACED SOIL
	CLAY		SILTY CLAY
	SAND		SAND AND GRAVEL

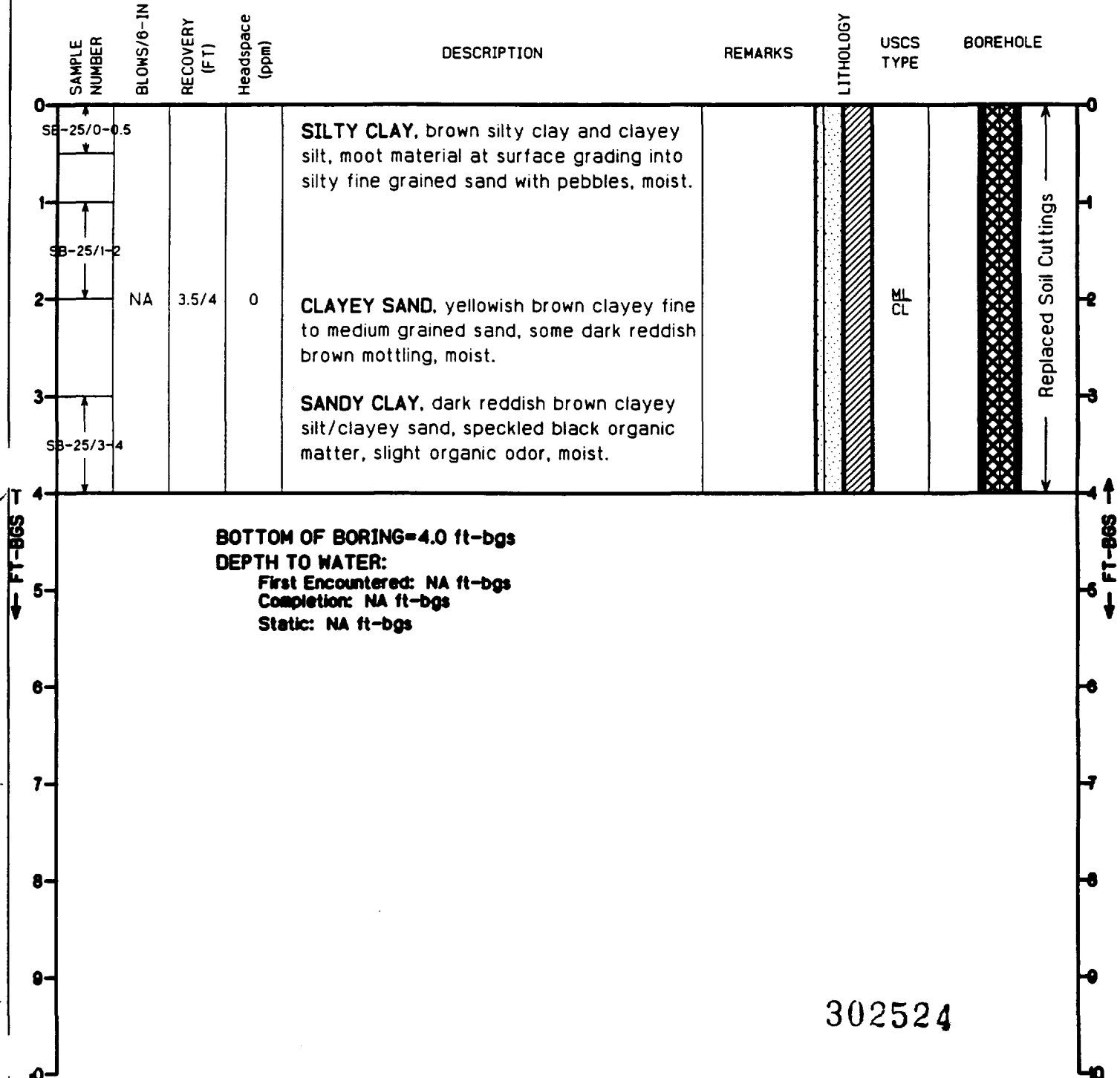
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-25

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 55.40
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413108.5402 / E 358449.4052	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

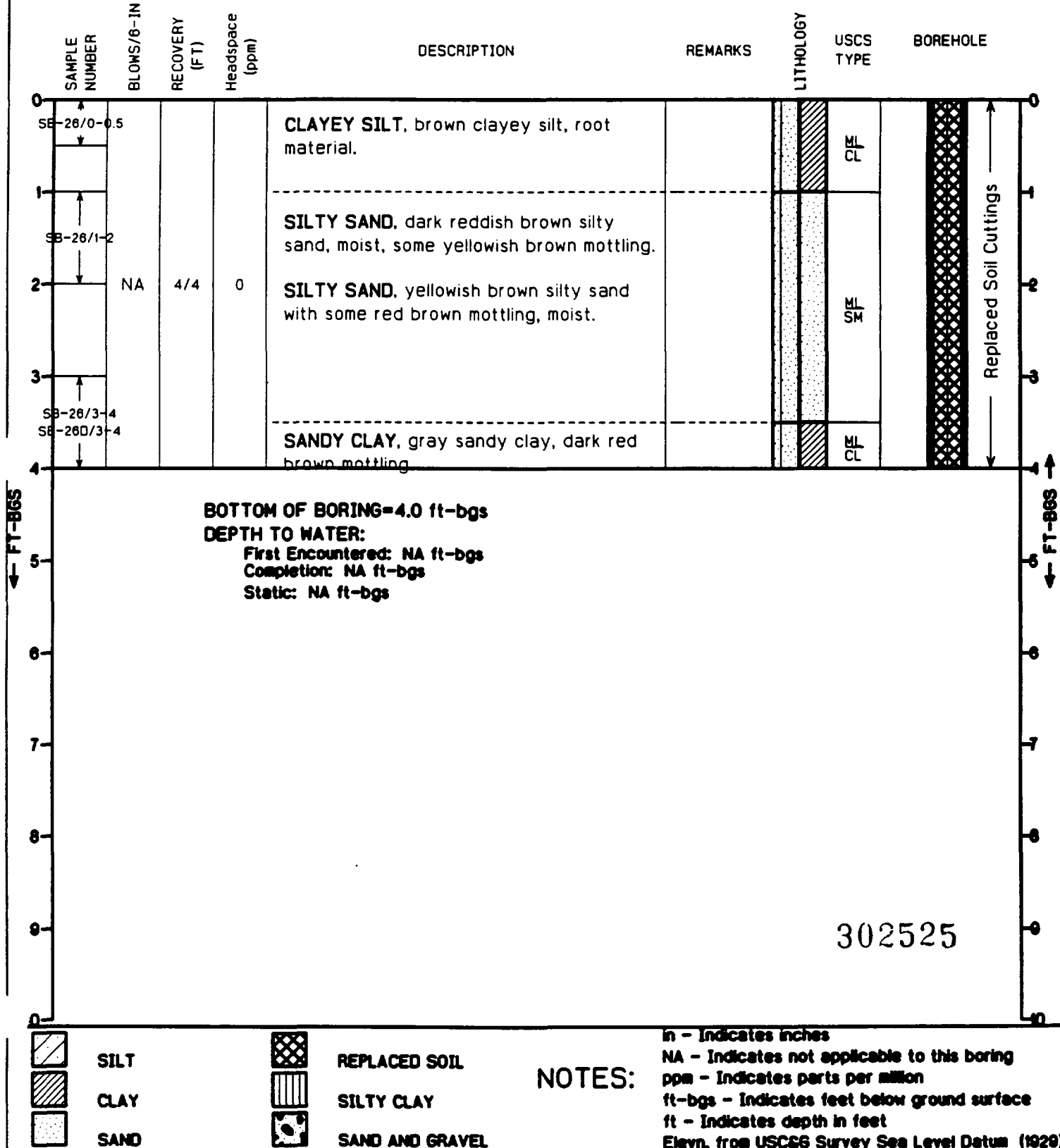
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USC&G Survey Sea Level Datum (1929)

LOG OF BORING: SB-26

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 58.10
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412988.9509 / E 358462.0421	

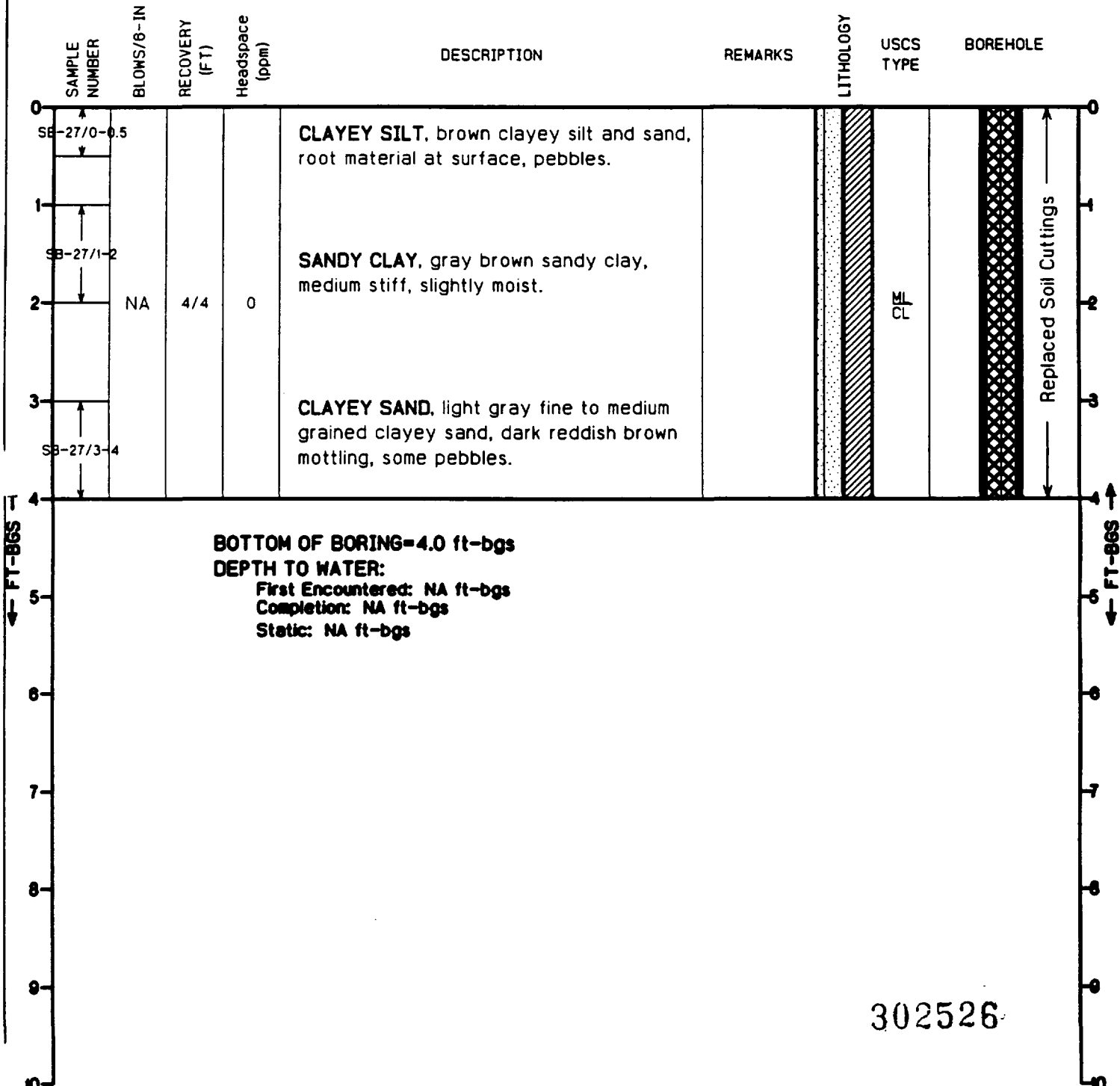


302525

LOG OF BORING: SB-27

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 58.80
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413040.8378 / E 358523.2365	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-28

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/05/94
DATE COMPLETED: 12/05/94

DRILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 2-inch
DRILLING BIT: Drive Point
NORTHING/EASTING: N 413160.8419 / E 358613.6720

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 60.30
DRILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-28/0-0.5				CLAYEY SILT, brown clayey silt with root material, grading into a silty sand, moist.			ML CL	
SB-28/1-2				SANDY SILT, yellowish red silty sand, few pebbles, some dark red staining, slightly moist.			ML SM	
NA	4/4	0		CLAYEY SAND, pale brown clayey sand, light grained with yellowish red mottling, moist, minor clay lense at 3.0 ft, medium stiff.			SM CL	
SB-28/3-4								
								Replaced Soil Cuttings

BOTTOM OF BORING-4.0 ft-bgs
DEPTH TO WATER:
First Encountered: NA ft-bgs
Completion: NA ft-bgs
Static: NA ft-bgs

302527



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

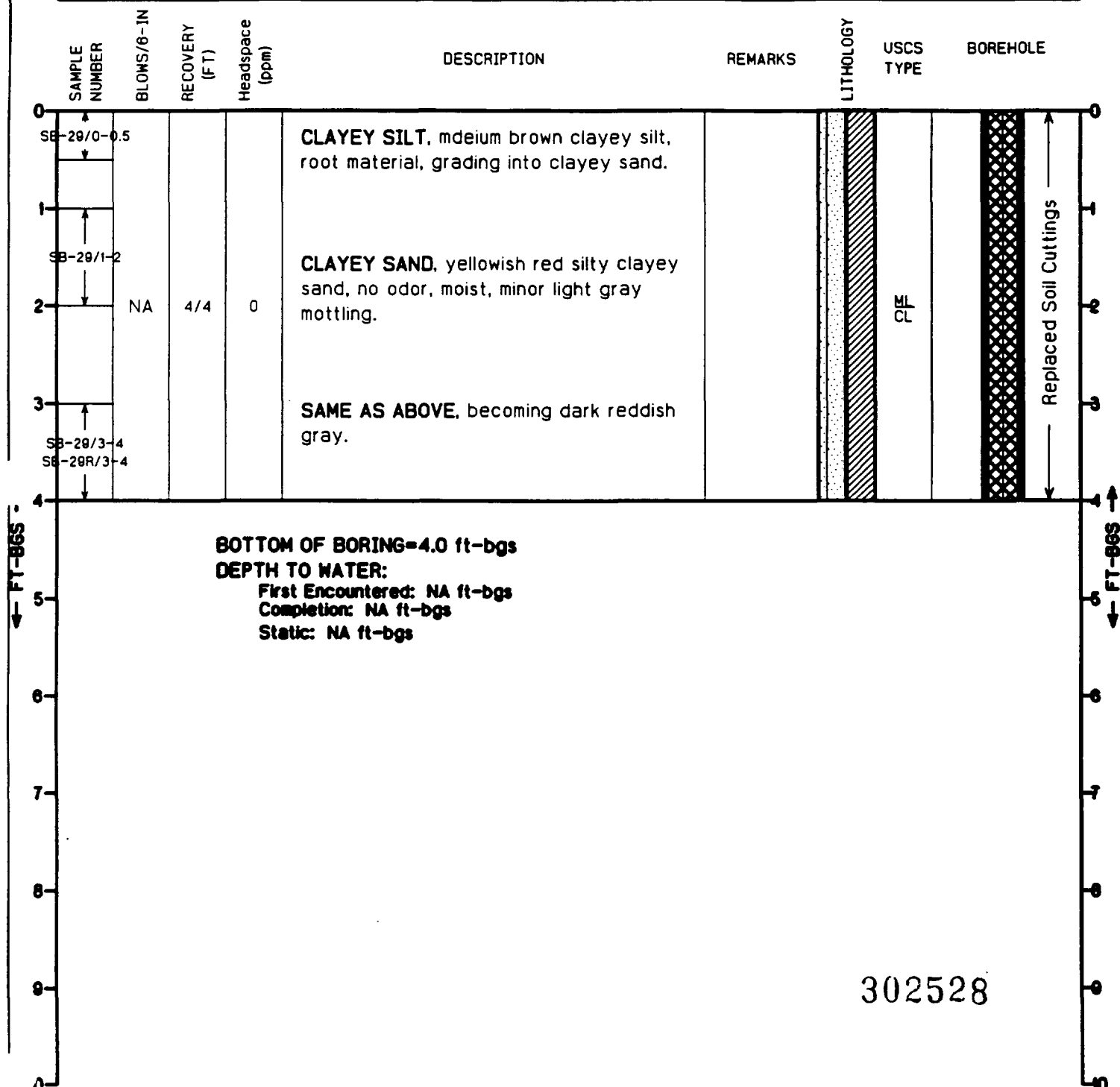
NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-29

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 63.3
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/05/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/05/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413330.7223 / E 358739.1985	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

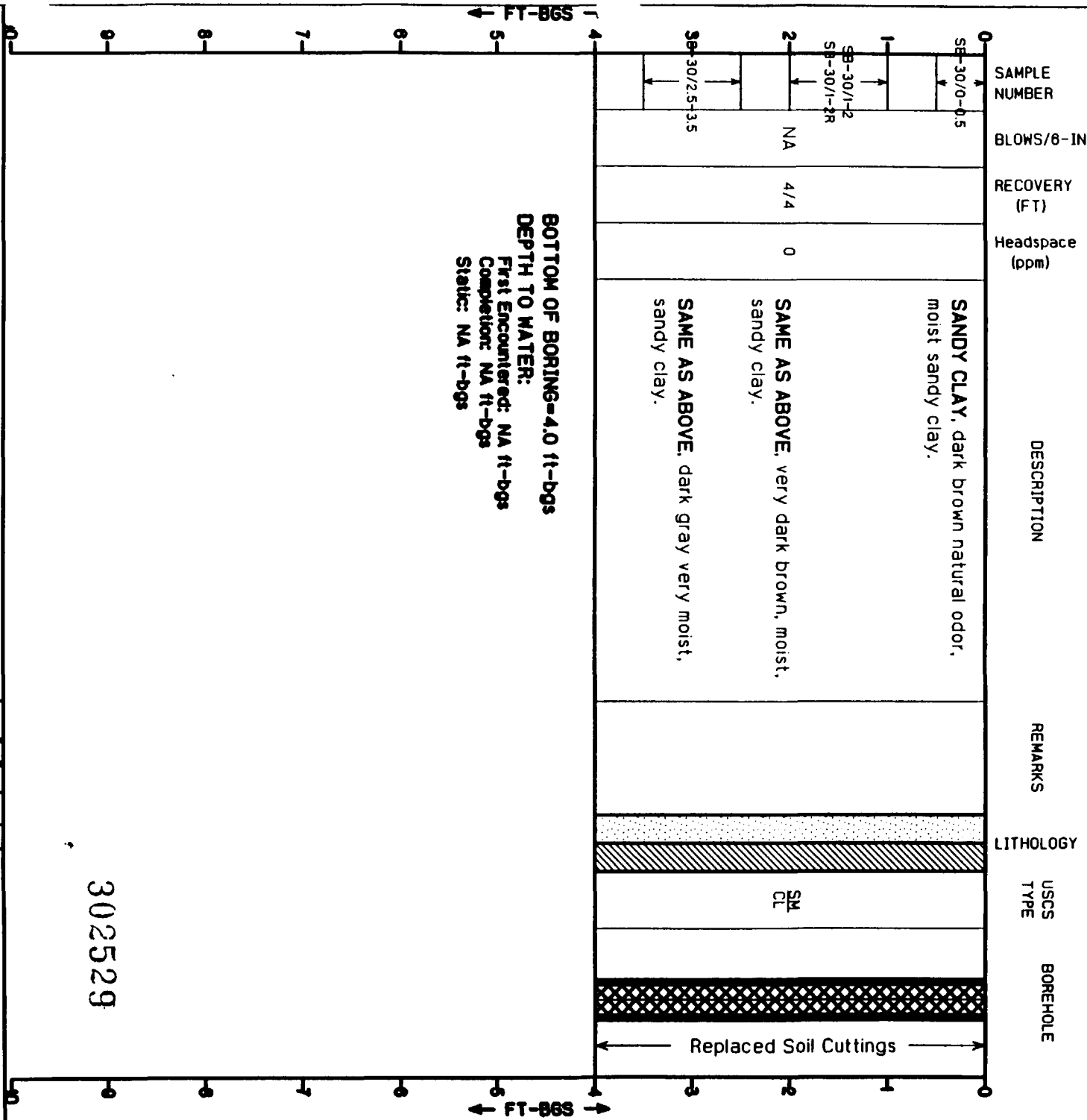
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-30

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801460.002 DATE STARTED: 12/07/94 DATE COMPLETED: 12/07/94	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/WEEL DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 412743.5061 / E 358674.0132	TOTAL BORING DEPTH (ft): 4.0 GROUND SURF. ELEV. (ft-msl): 58.30 DRILLERS: Tom GEOLOGIST: JAB CONSULTANT: McLaren/Hart
--	---	---



SILT
 CLAY
 SAND

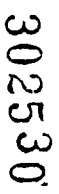
REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey See Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 65.50
DRILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



BOTTOM OF BORING-4.0 ft-bgs
DEPTH TO WATER:
First Encountered: NA ft-bgs
Completion: NA ft-bgs
Static: NA ft-bgs

Replaced Soil Cuttings



REPLACED SOIL.
SILTY CLAY
SAND AND GRAVEL

NOTES:

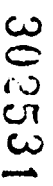
in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevm. from USCG6 Survey Sea Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 0.5
GROUND SURF. ELEV. (ft-msl): 58.50
DRILLERS: JAB
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart

~~Replaced Soil Gittings~~

First Encountered: NA ft-dgs
Completion: NA ft-dgs
Static: NA ft-dgs



- ## NOTES:

NA - Indicates not applicable to this boring
ppm - Indicates parts per million

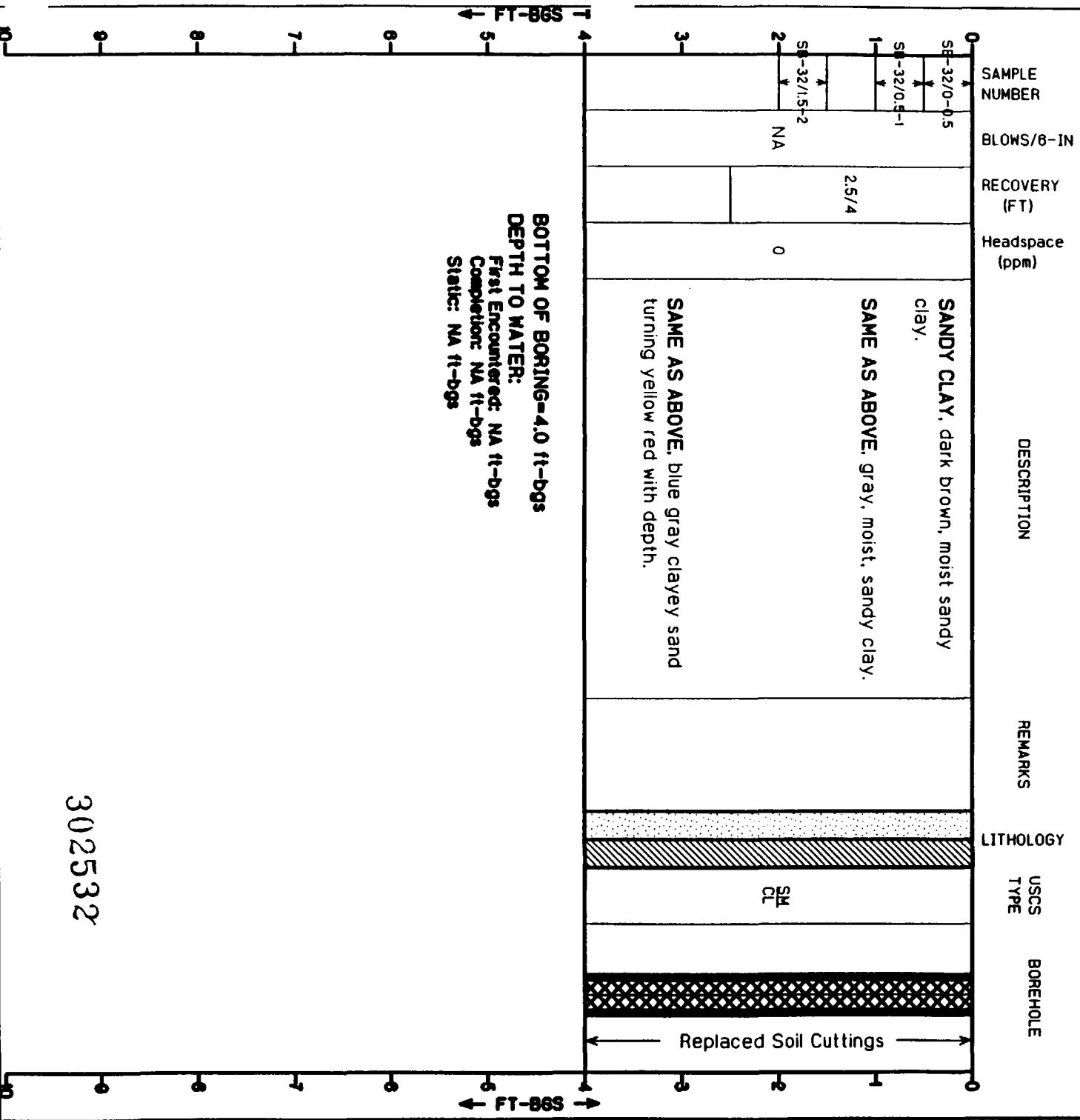
ft - Indicates depth in feet
Elevn. from USCGS Survey Sea Level Datum (1984)

Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-32

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 58.90
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412735.2893 / E 358708.9682	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

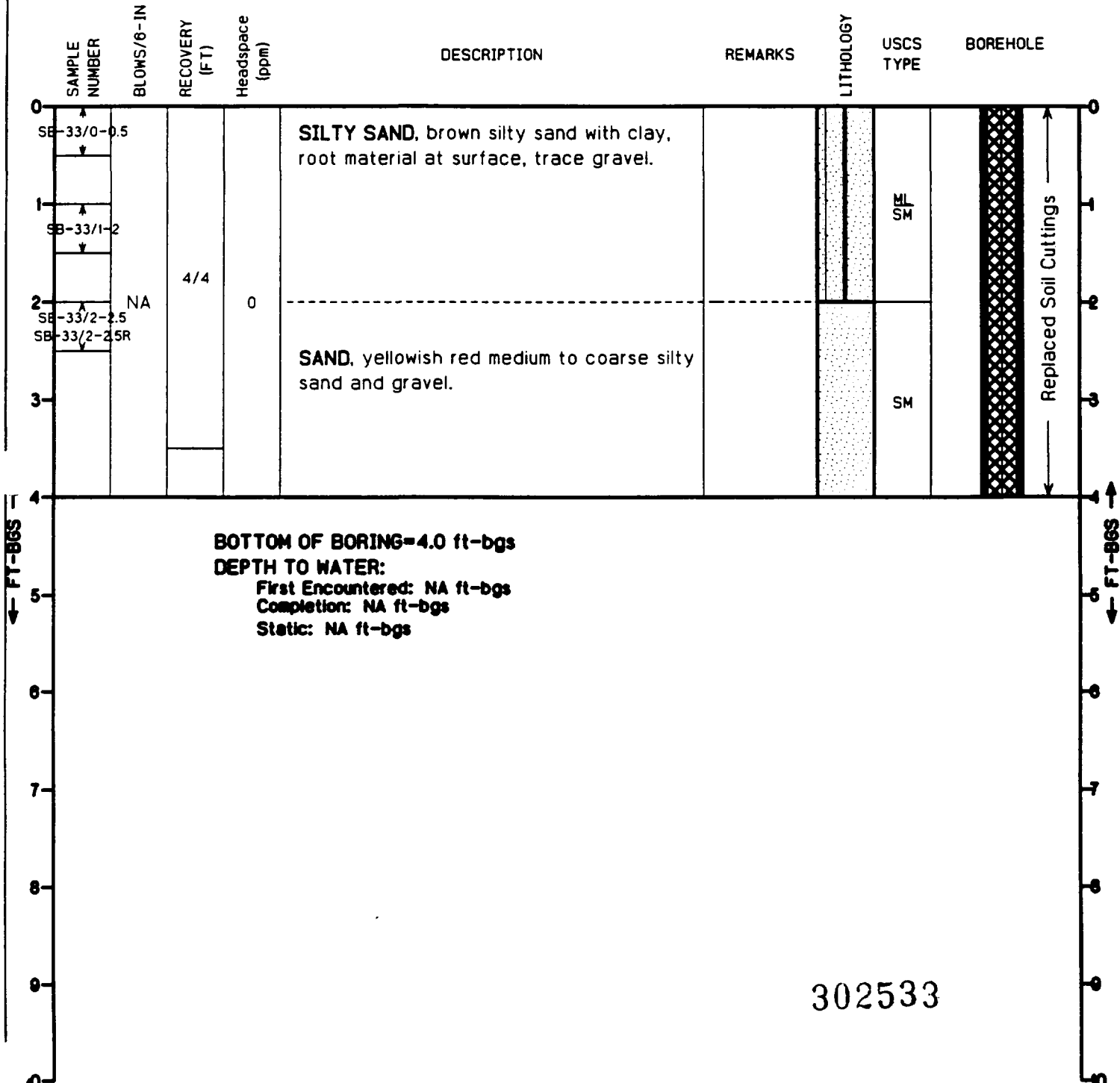
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-33

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 65.00
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413138.5556 / E 359038.8480	



SILT
CLAY
SAND

REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-33B

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/14/94
DATE COMPLETED: 12/14/94

DRILLING METHOD: Hand Auger
SAMPLING METHOD: Grab
DRILLING CO.: N/A
BOREHOLE/Well DIAMETER: 2-inch
DRILLING BIT: N/A
NORTHING/EASTING: N 413184 / E 359055

TOTAL BORING DEPTH (ft): 0.5
GROUND SURF. ELEV. (ft-msl): 63.00
DRILLERS: JAB
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart

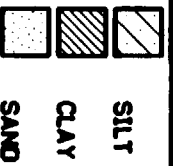
SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-33B/0-0.5 NA	0.5/0.5	0		SANDY CLAY, dark brown sandy clay with roots.			SM CL	

Replaced Soil Cuttings

BOTTOM OF BORING=0.5 ft-bgs
DEPTH TO WATER:
First Encountered: NA ft-bgs
Completion: NA ft-bgs
Static: NA ft-bgs

1 2
↓ FT-BGS

2 3
↓ FT-BGS



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

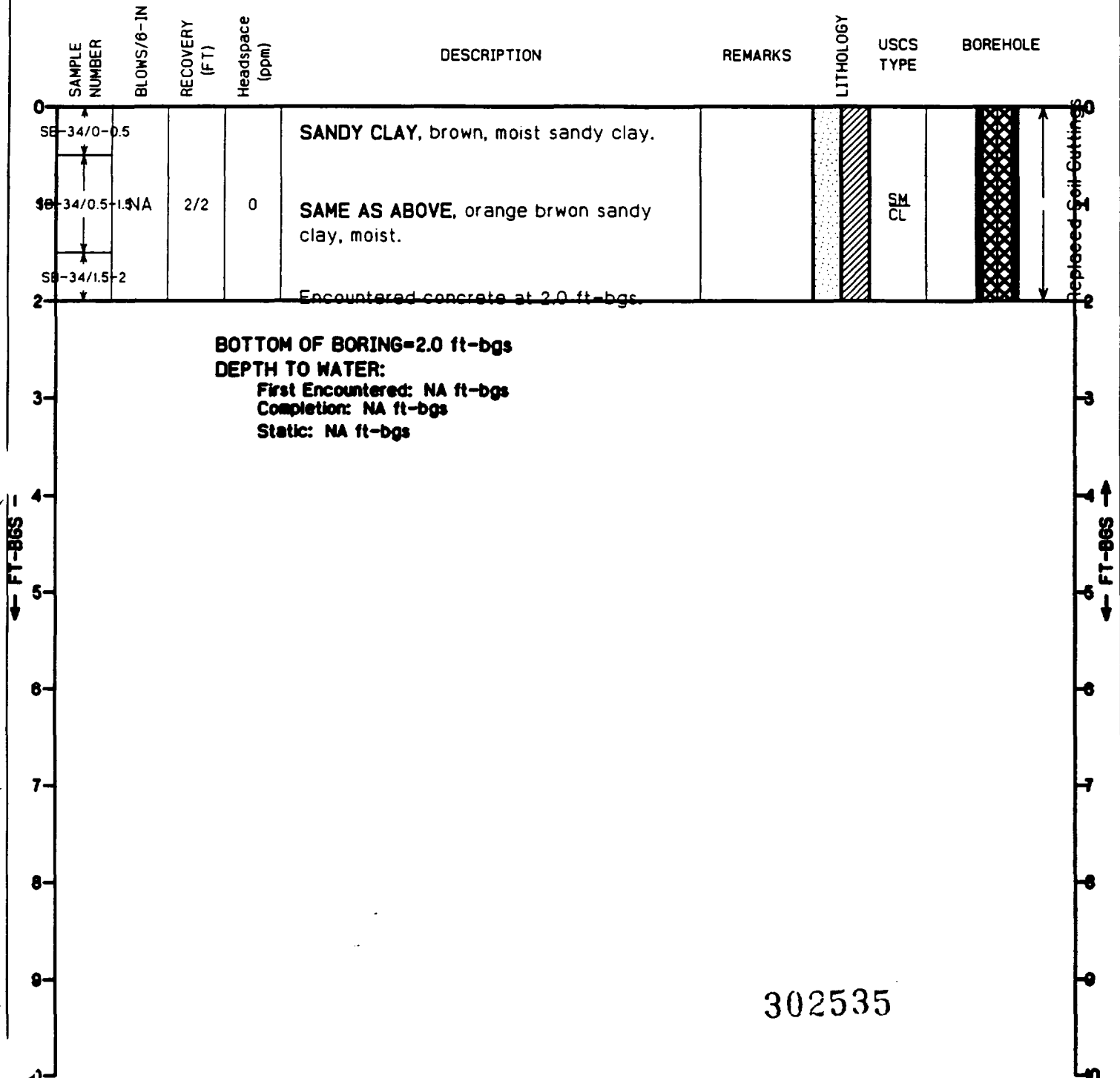
n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey See Level Datum (1929)

302534

LOG OF BORING: SB-34

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 2.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 81.80
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412721.2214 / E 358770.2740	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

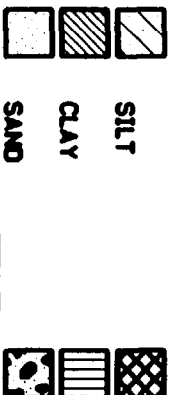
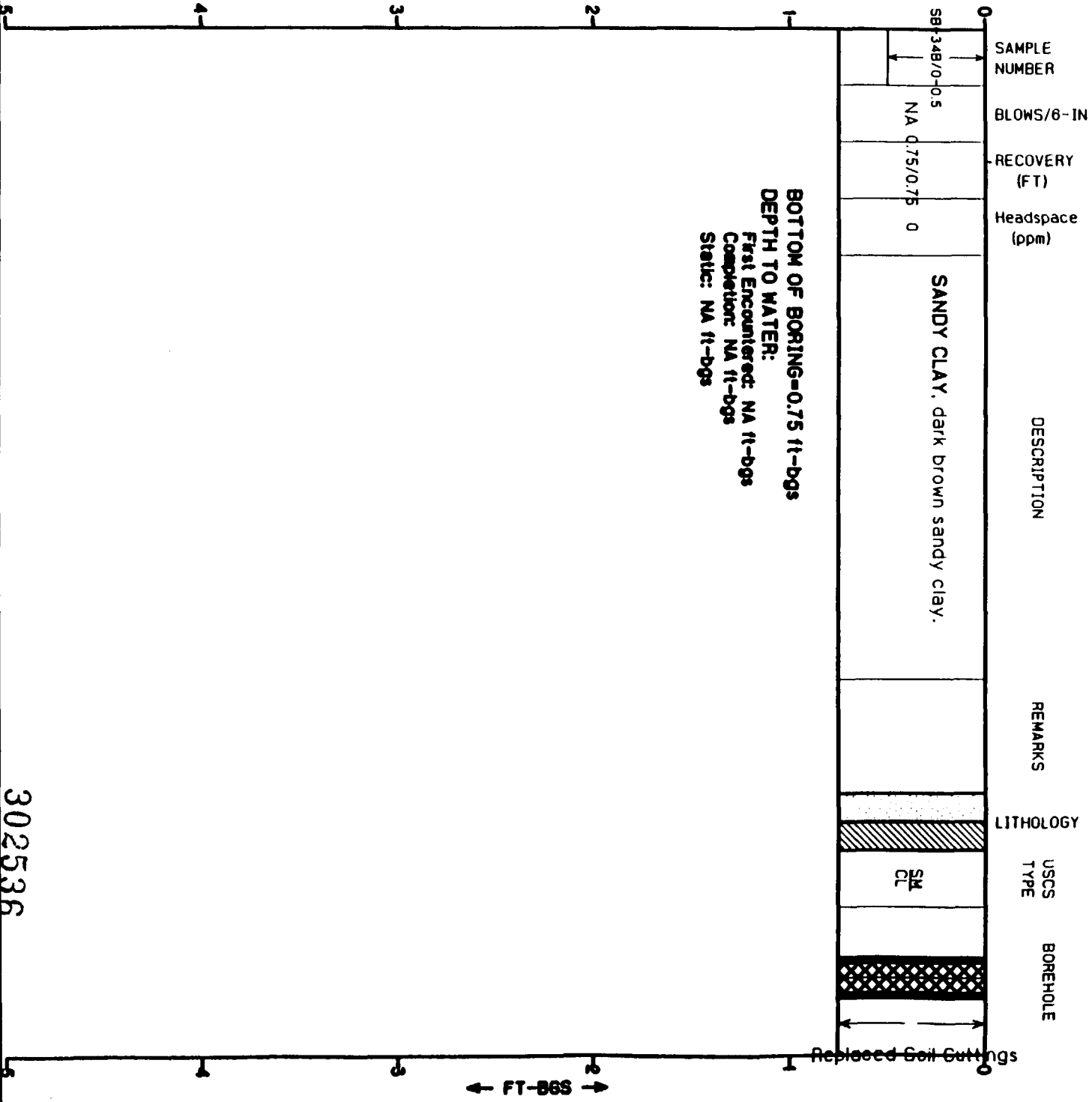
LOG OF BORING: SB-34E

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/14/94
DATE COMPLETED: 12/14/94

DRILLING METHOD: Hand Auger
SAMPLING METHOD: Grab
DRILLING CO.: N/A
BOREHOLE/WELL DIAMETER: 2-inch
DRILLING BIT: N/A
NORTHING/EASTING: N 412679 / E 358745

TOTAL BORING DEPTH (ft): 0.75
GROUND SURF. ELEV. (ft-msl): 64.30
DRILLERS: JAB
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

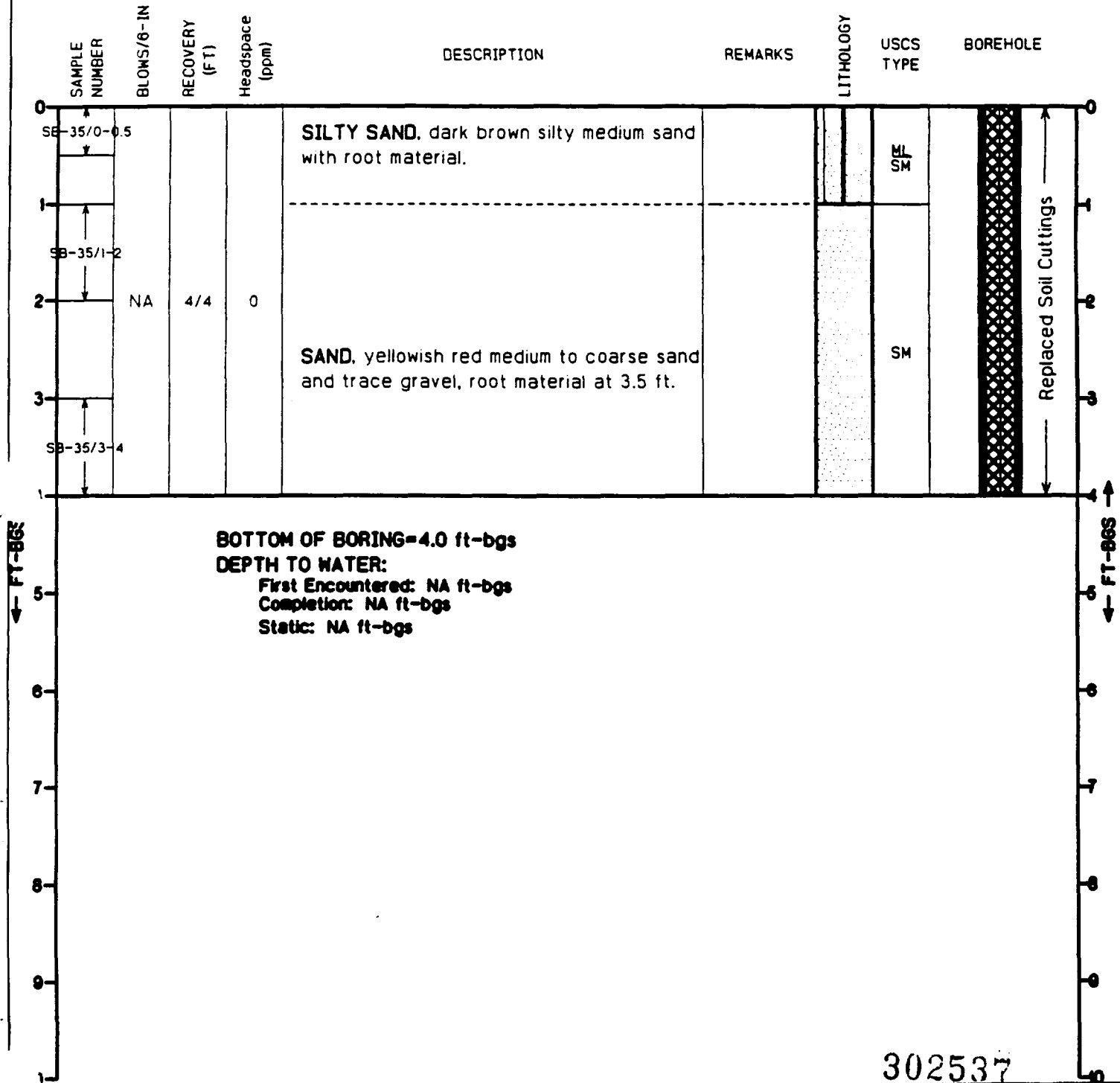
ft - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCG6 Survey Sea Level Datum (1929)

302536

LOG OF BORING: SB-35

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 63.20
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412872.8419 / E 358900.8719	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

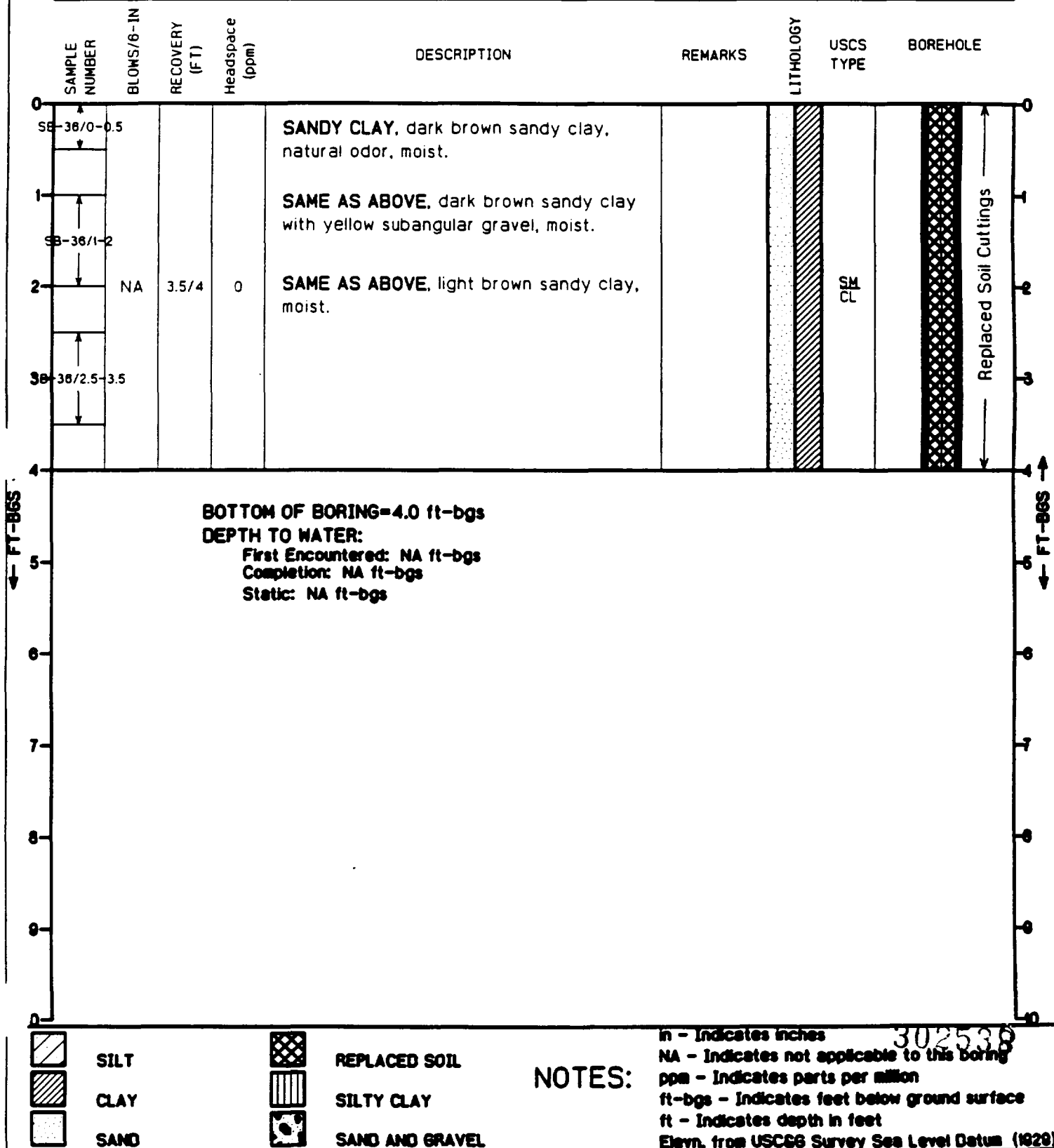
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USC66 Survey Sea Level Datum (1929)

LOG OF BORING: SB-36

Page 1 of 1

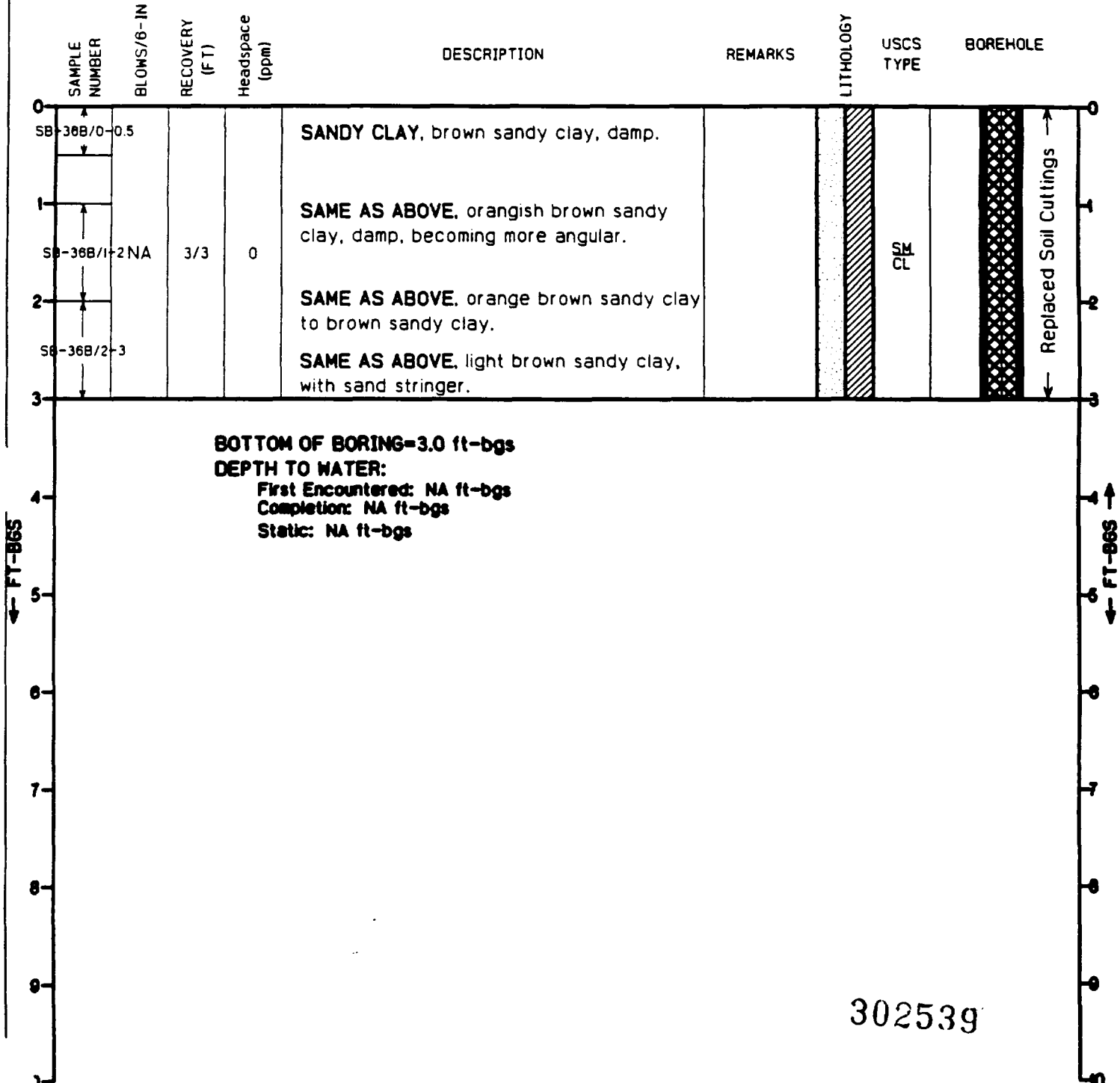
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 69.00
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412533.4908 / E 358993.5445	



LOG OF BORING: SB-36B

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl): 65.50
PROJECT NO.: 09.0801460.002	DRILLING CO.: N/A	DRILLERS: JAB
DATE STARTED: 12/14/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/14/94	DRILLING BIT: N/A	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412581 / E 358868	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

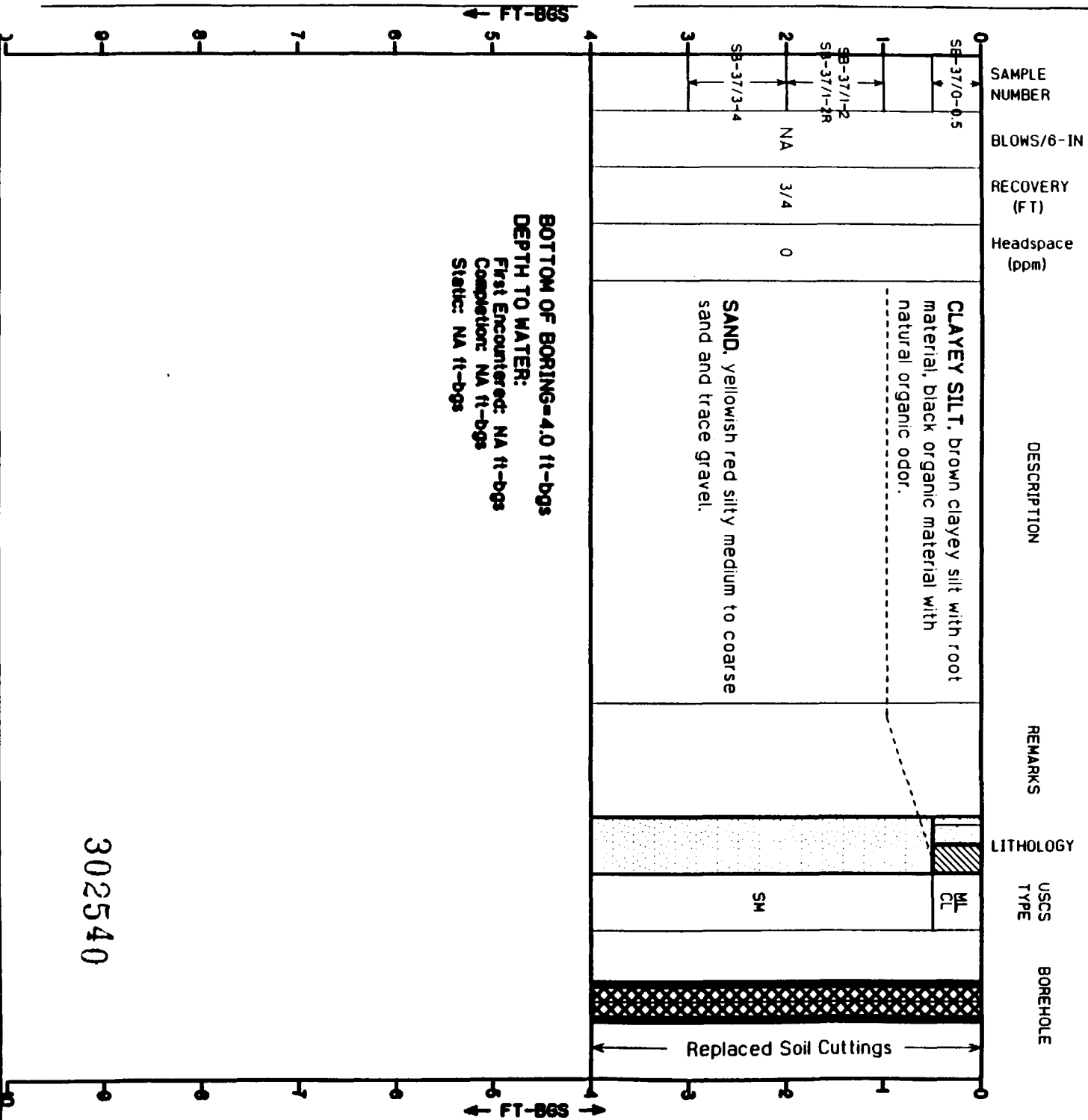
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-37

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801480.002 DATE STARTED: 12/07/94 DATE COMPLETED: 12/07/94	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/WEEL DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 412591.9089 / E 358973.0599	TOTAL BORING DEPTH (ft): 4.0 GROUND SURF. ELEV. (ft-msl): 88.80 DRILLERS: Tom GEOLOGIST: F. Coll CONSULTANT: McLaren/Hart
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SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCS89 Survey Sea Level Datum (1929)

LOG OF BORING: SB-38

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 68.00
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412658.7538 / E 359030.5649	

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-38/0-0.5				FILL, fill with rock fragments, coarse sand with gravel, light gray slag, highly weathered, mold like odor.			FILL	
SB-38/1-2								
2	NA	3.5/4	0	SAND, yellowish red silty coarse sand and trace gravel, moist.			SM	
SB-38/2.5-3.5								
SB-38/2.5-3.5R								
BOTTOM OF BORING=4.0 ft-bgs DEPTH TO WATER: First Encountered: NA ft-bgs Completion: NA ft-bgs Static: NA ft-bgs								
Replaced Soil Cuttings								

302541



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

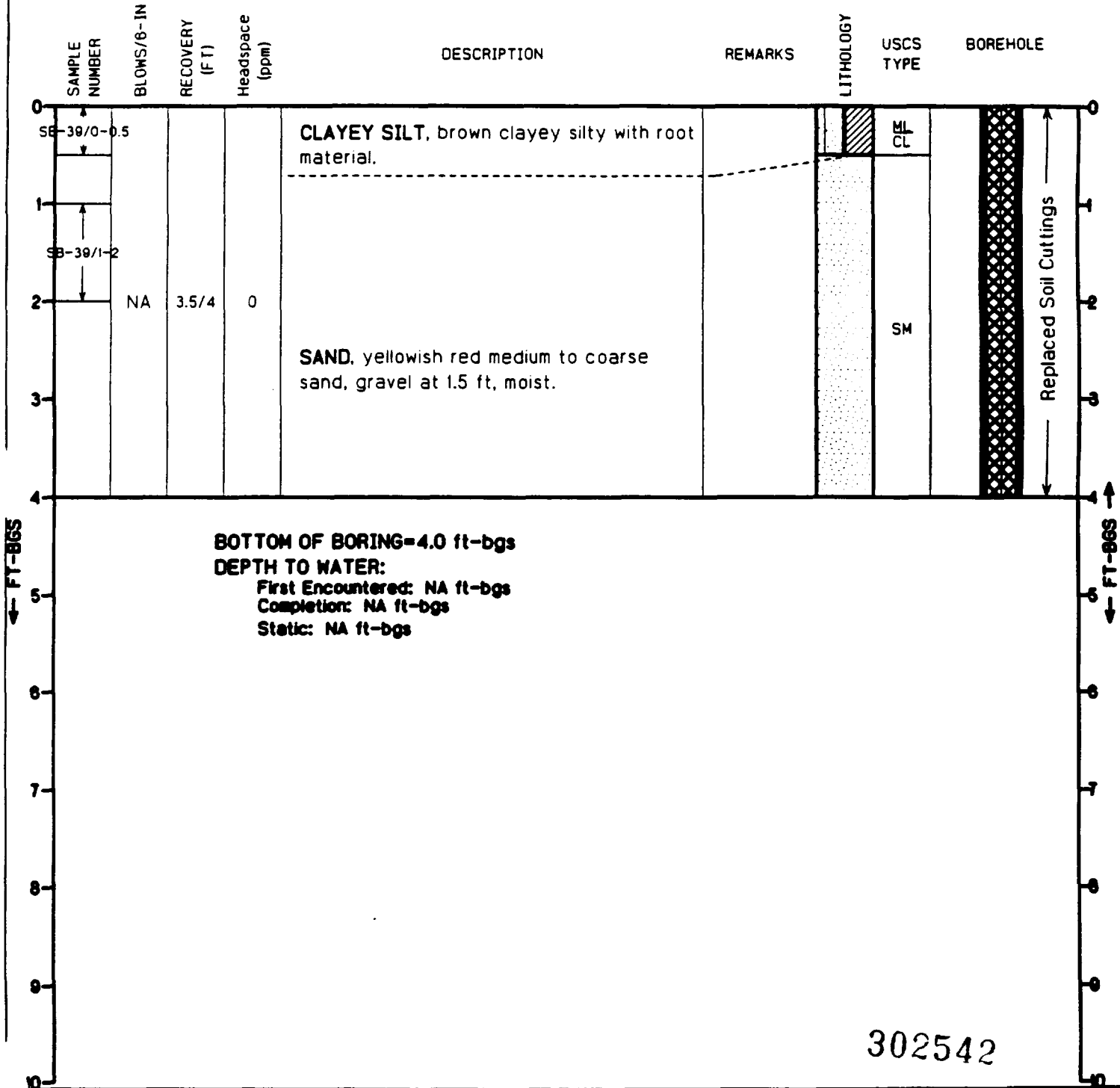
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-39

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 66.10
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412893.4713 / E 359066.3114	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

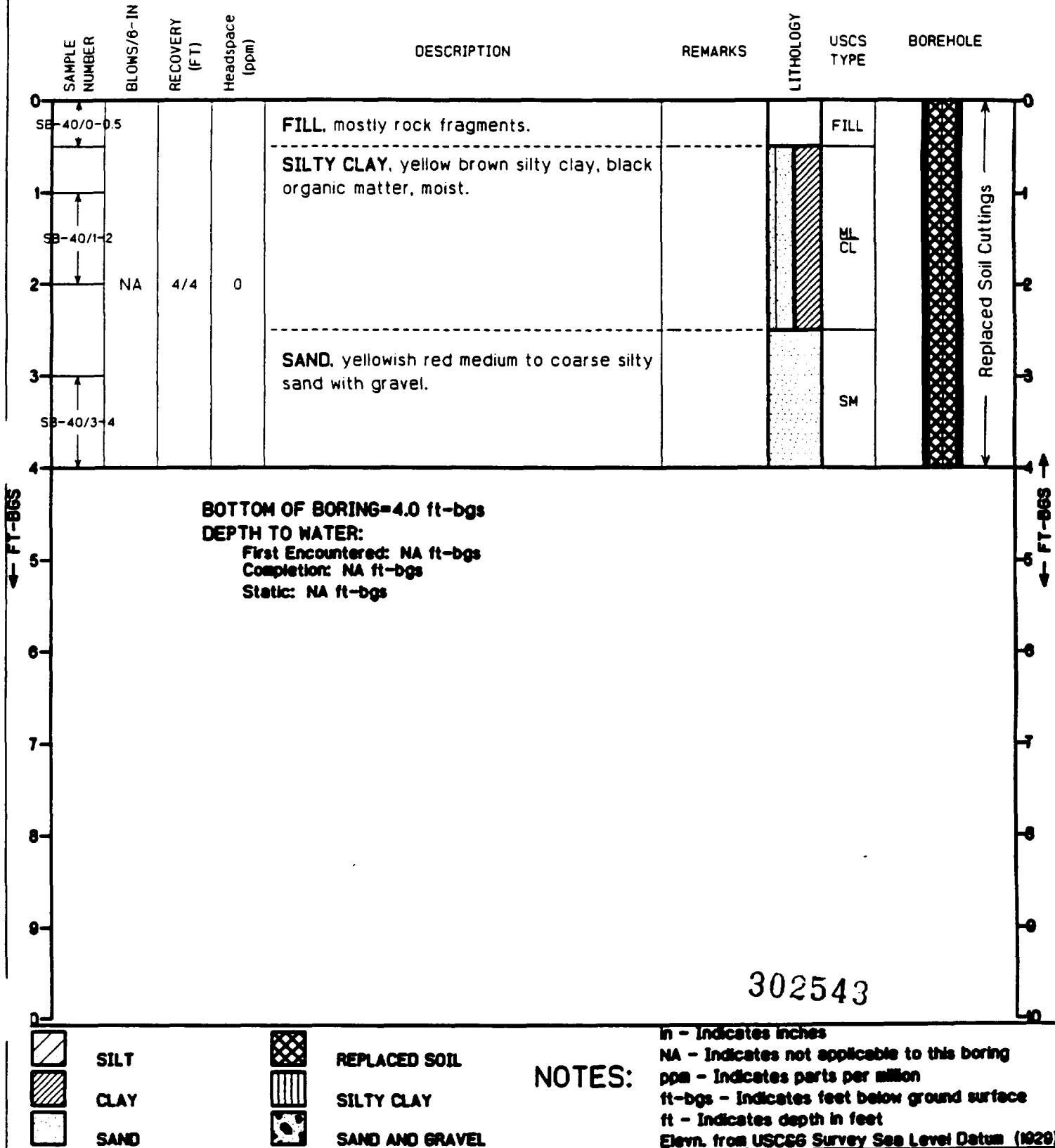
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-40

Page 1 of 1

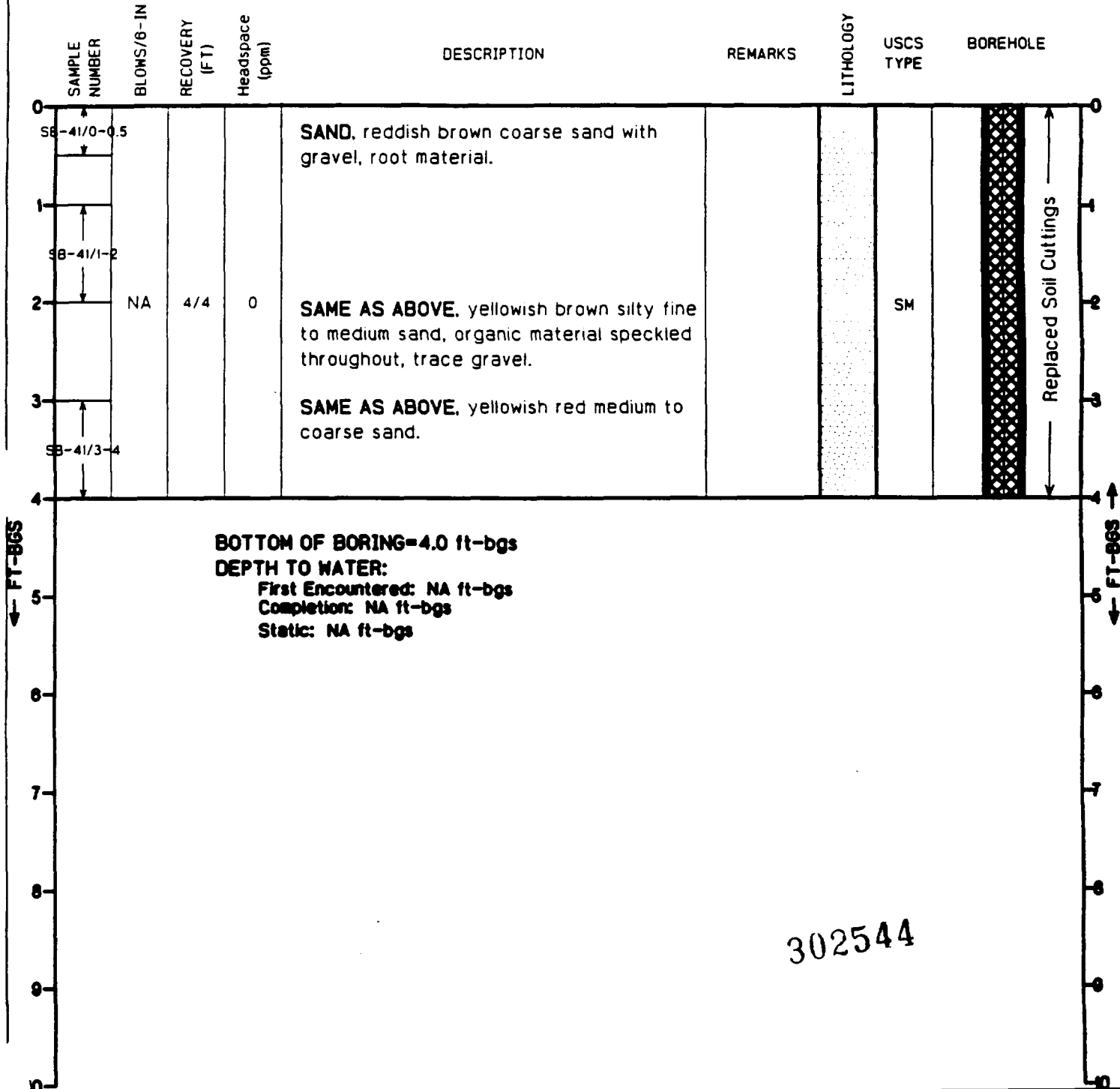
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 69.20
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412693.4713 / E 359066.3114	



LOG OF BORING: SB-41

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 88.30
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412915.9717 / E 359231.4038	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

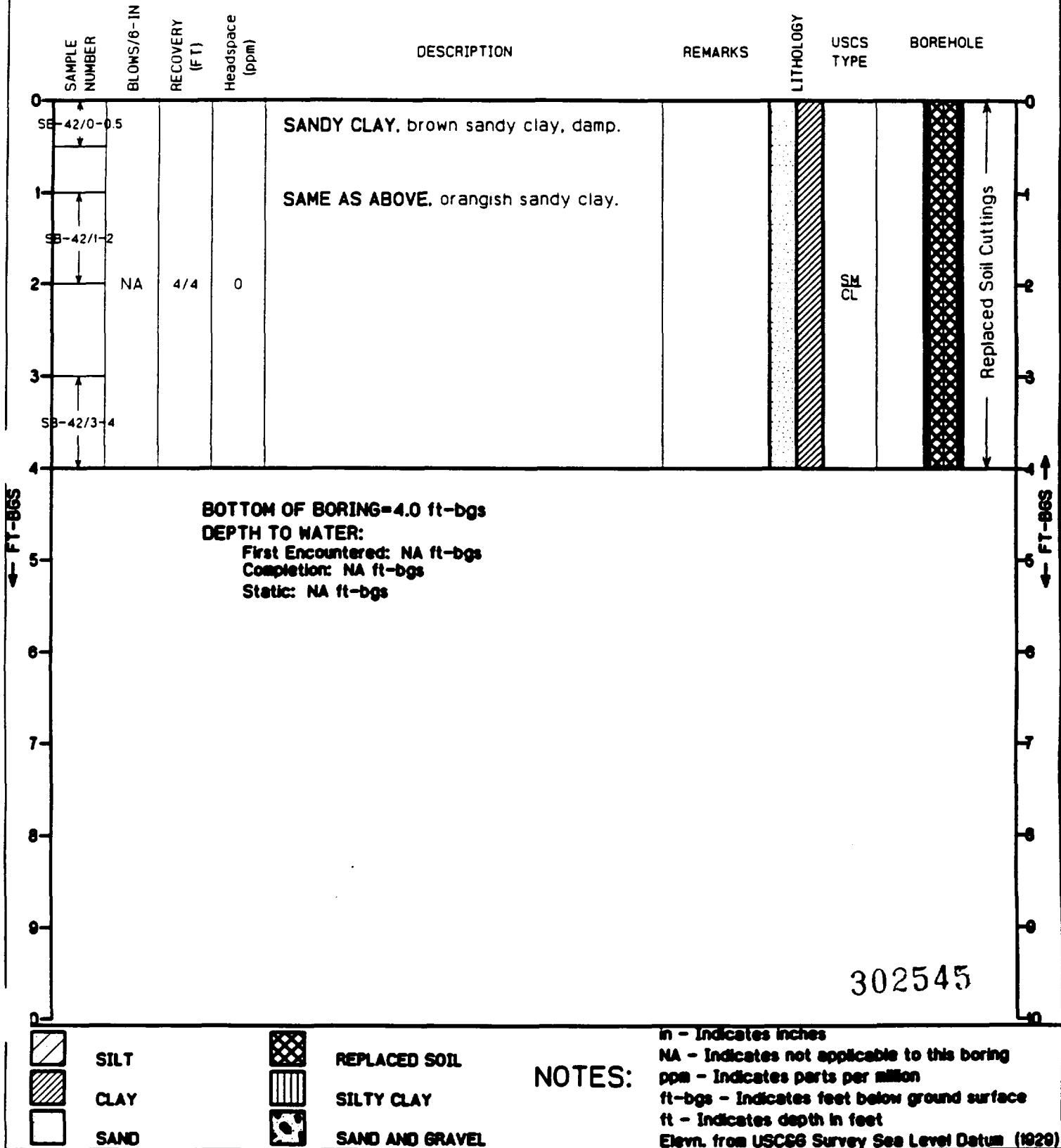
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey See Level Datum (1929)

LOG OF BORING: SB-42

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 87.80
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412943.5173 / E 359289.9056	



LOG OF BORING: SB-42B

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/14/94
DATE COMPLETED: 12/14/94

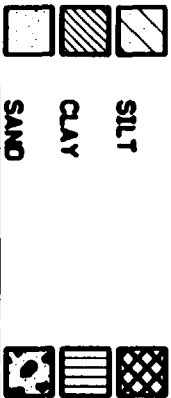
DRILLING METHOD: Hand Auger
SAMPLING METHOD: Grab
DRILLING CO.: N/A
BOREHOLE/Well DIAMETER: 2-inch
DRILLING BIT: N/A
NORTHING/EASTING: N 412964 / E 359373

TOTAL BORING DEPTH (ft): 0.5
GROUND SURF. ELEV. (ft-msl): 67.40
DRILLERS: JAB
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/8-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-42B/0-0.5 NA	0.5/0.5	0		SANDY CLAY, dark brown sandy clay with vegetation.			SH CL	
BOTTOM OF BORING=0.5 ft-bgs DEPTH TO WATER: First Encountered: NA ft-bgs Completion: NA ft-bgs Static: NA ft-bgs								
Replaced Soil Gittings								

FT-BGS

FT-BGS



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

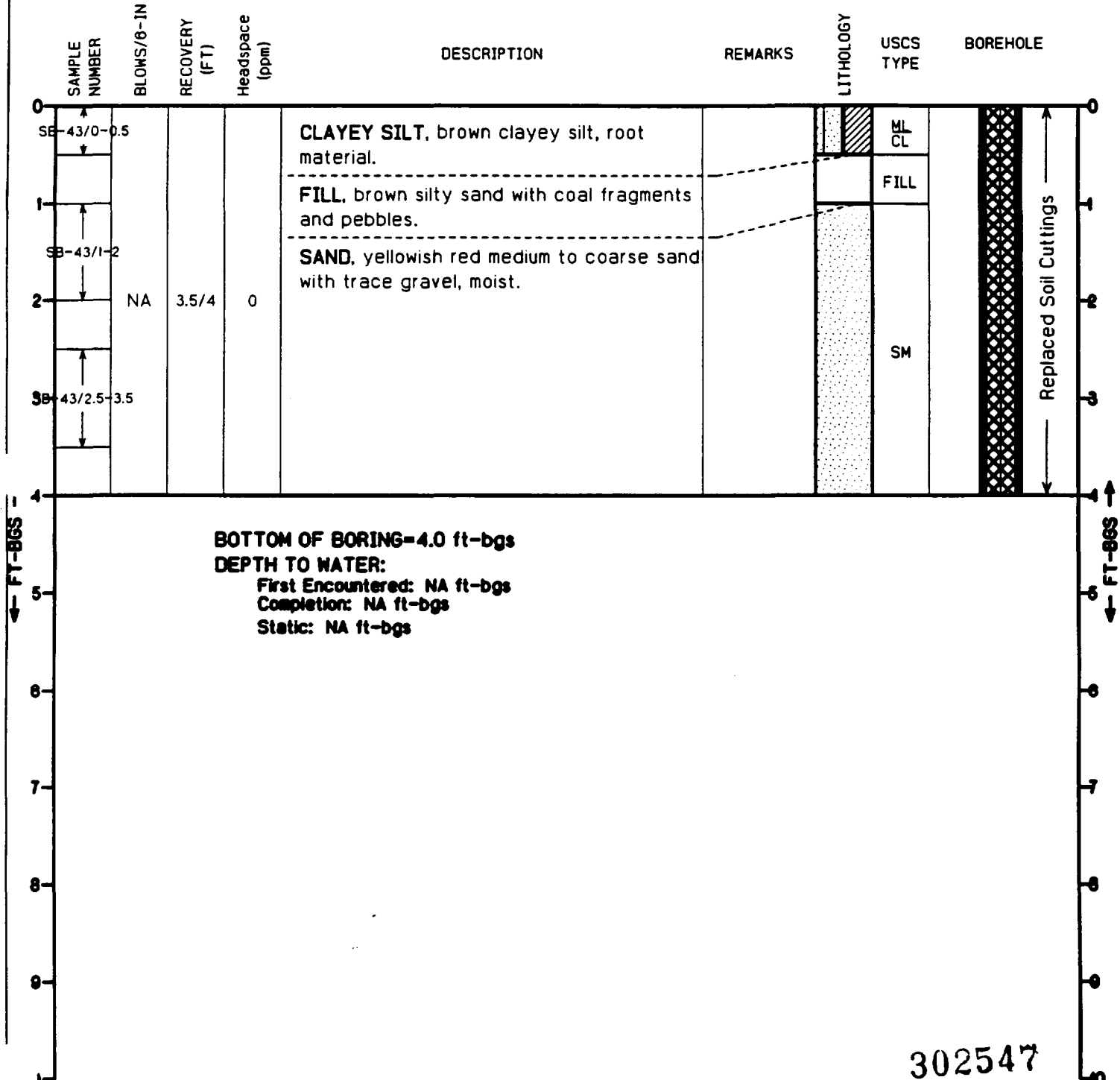
n - Indicates inches
NA - Indicates not applicable to the boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey See Level Datum (1929)

302546

LOG OF BORING: SB-43

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 68.70
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412863.9935 / E 359298.5808	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

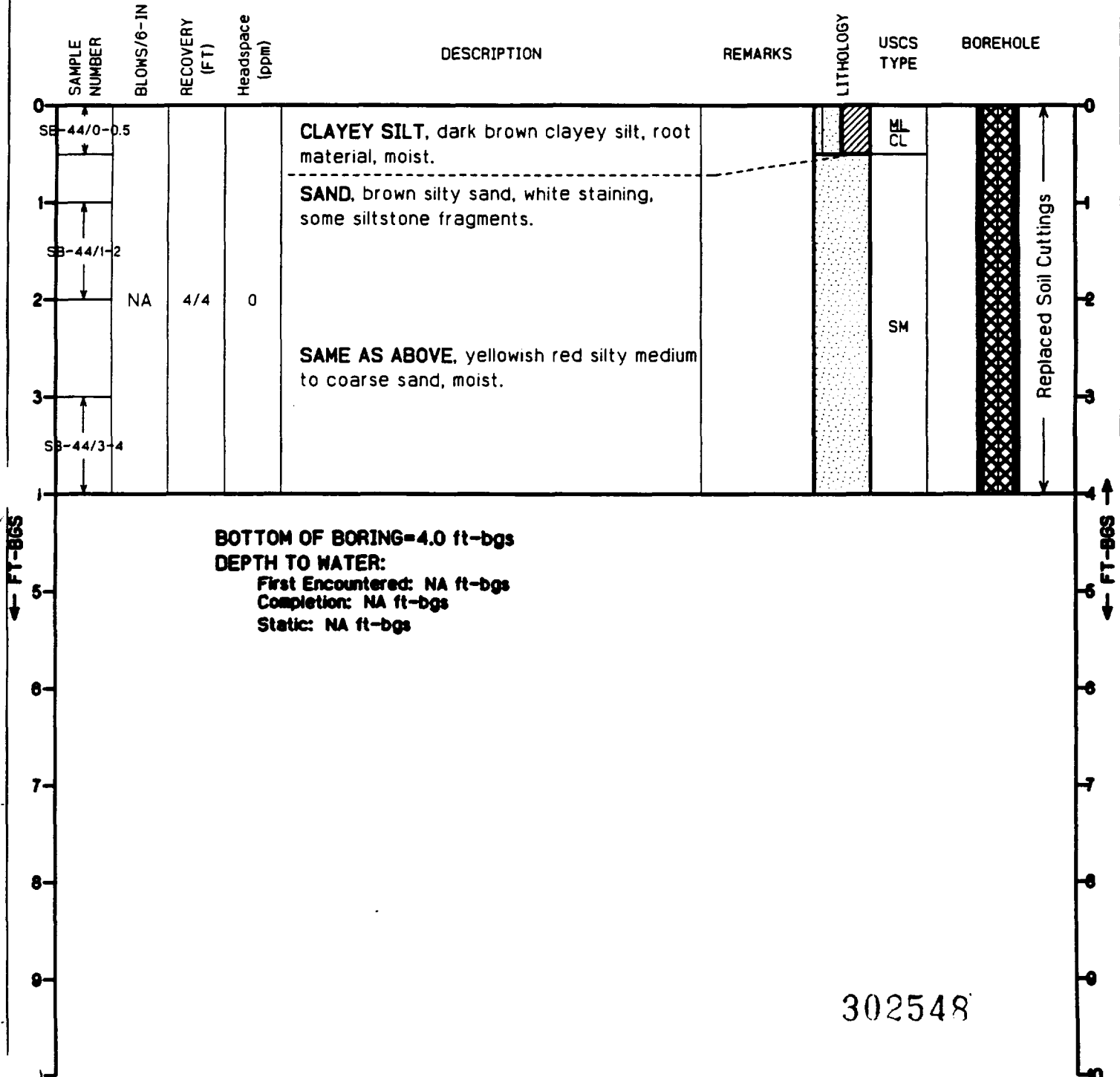
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elev. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-44

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 89.50
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412525.8861 / E 359207.2211	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

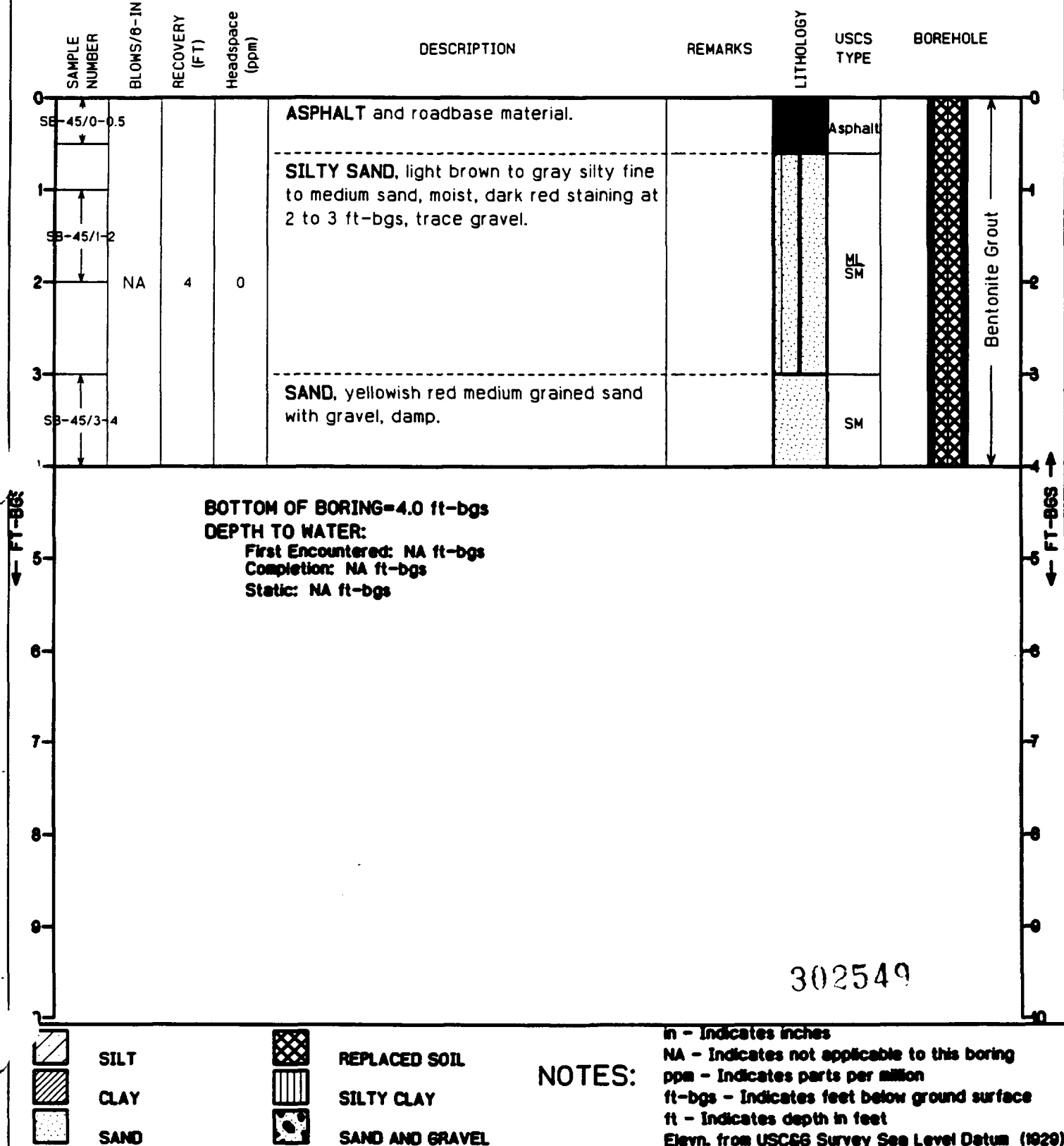
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-45

Page 1 of 1

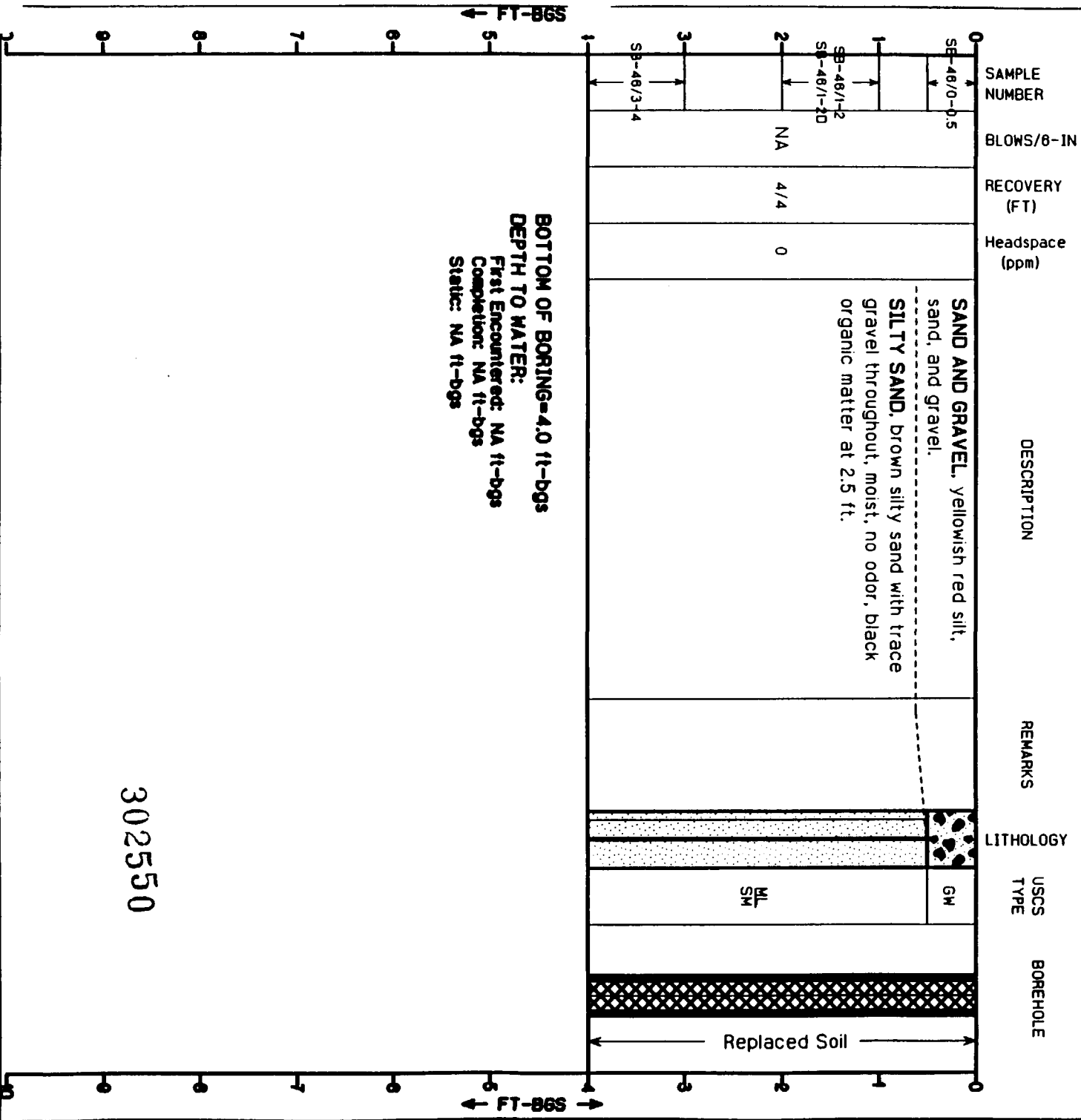
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 65.10
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412689.4634 / E 359306.0420	



LOG OF BORING: SB-46

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 67.70
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412580.2085 / E 359329.5222	



SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

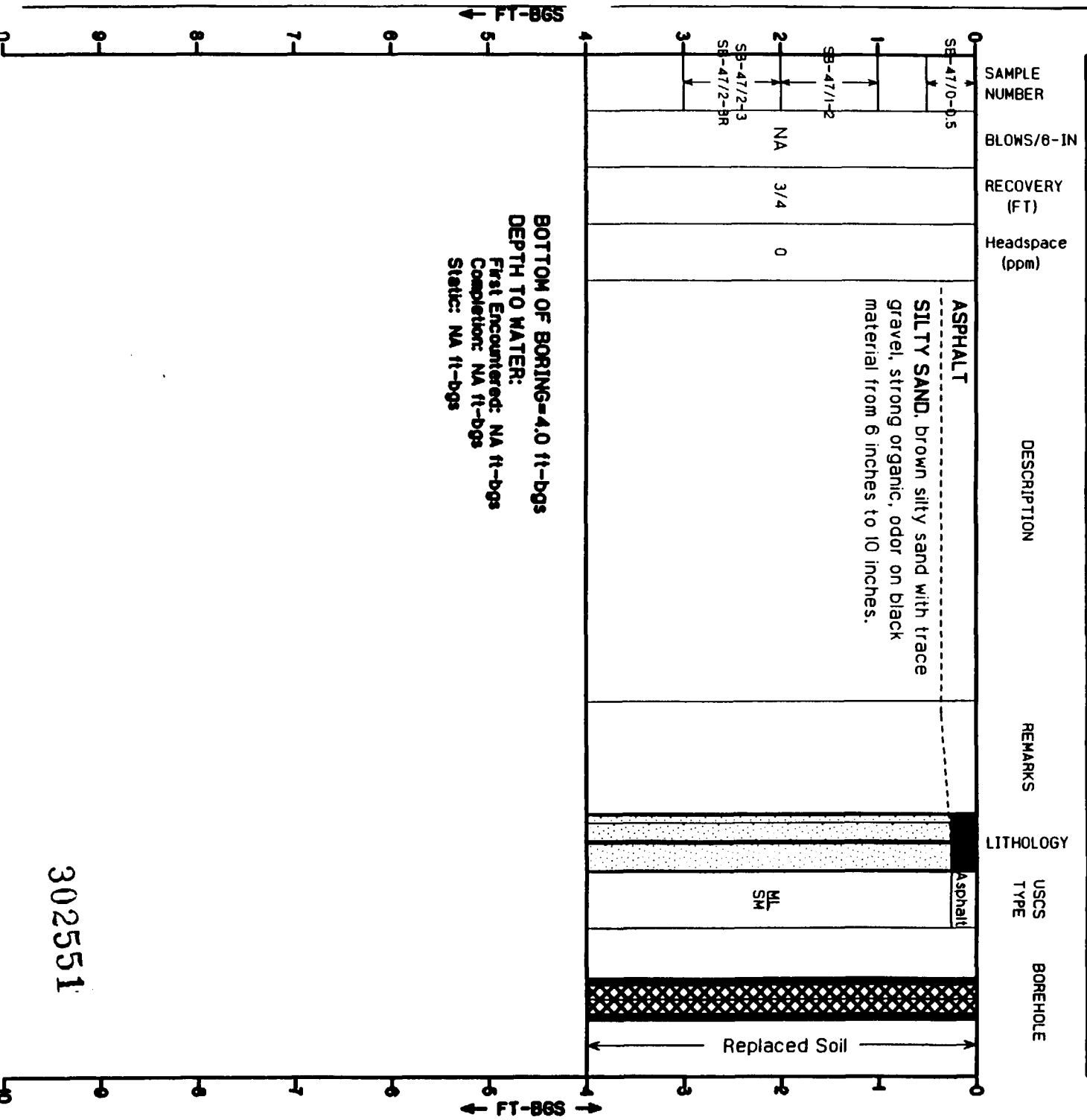
NOTES:







in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-47

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801460.002 DATE STARTED: 12/07/94 DATE COMPLETED: 12/07/94	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/Well DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 412633.1519 / E 359375.9541	TOTAL BORING DEPTH (ft): 4.0 GROUND SURF. ELEV. (ft-msl): 67.40 DRILLERS: Tom GEOLOGIST: F. Coll CONSULTANT: McLaren/Hart
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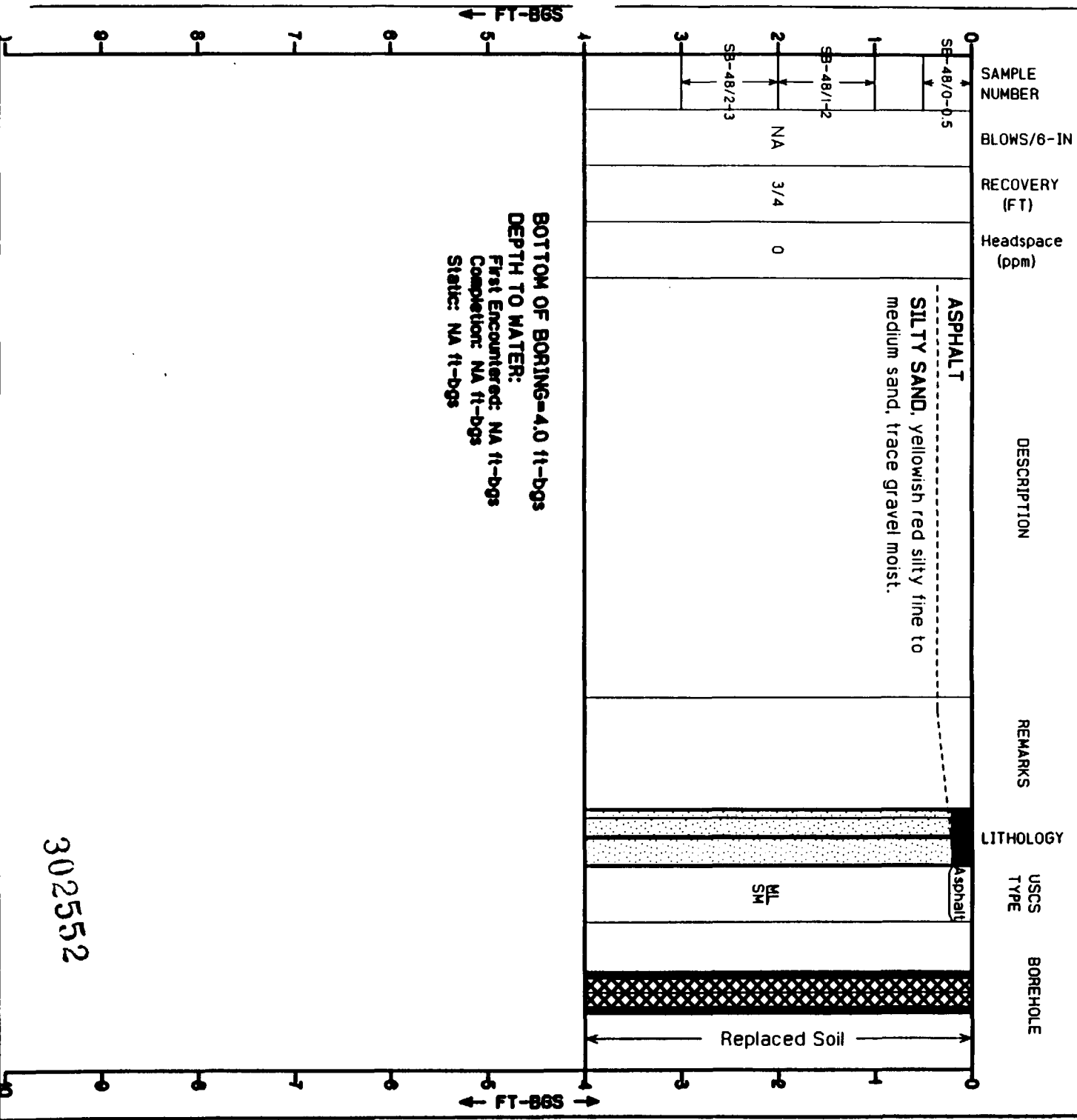
	SILT		REPLACED SOIL	NOTES:
	CLAY		SILTY CLAY	
	SAND		SAND AND GRAVEL	

ft - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elev. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-48

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801480.002 DATE STARTED: 12/07/84 DATE COMPLETED: 12/07/84	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/WEEL DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 412775.4083 E 359450.0130	TOTAL BORING DEPTH (ft): 4.0 GROUND SURF. ELEV. (ft-msl): 88.50 DRILLERS: Tom GEOLOGIST: F. Coll CONSULTANT: McLaren/Hart
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SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

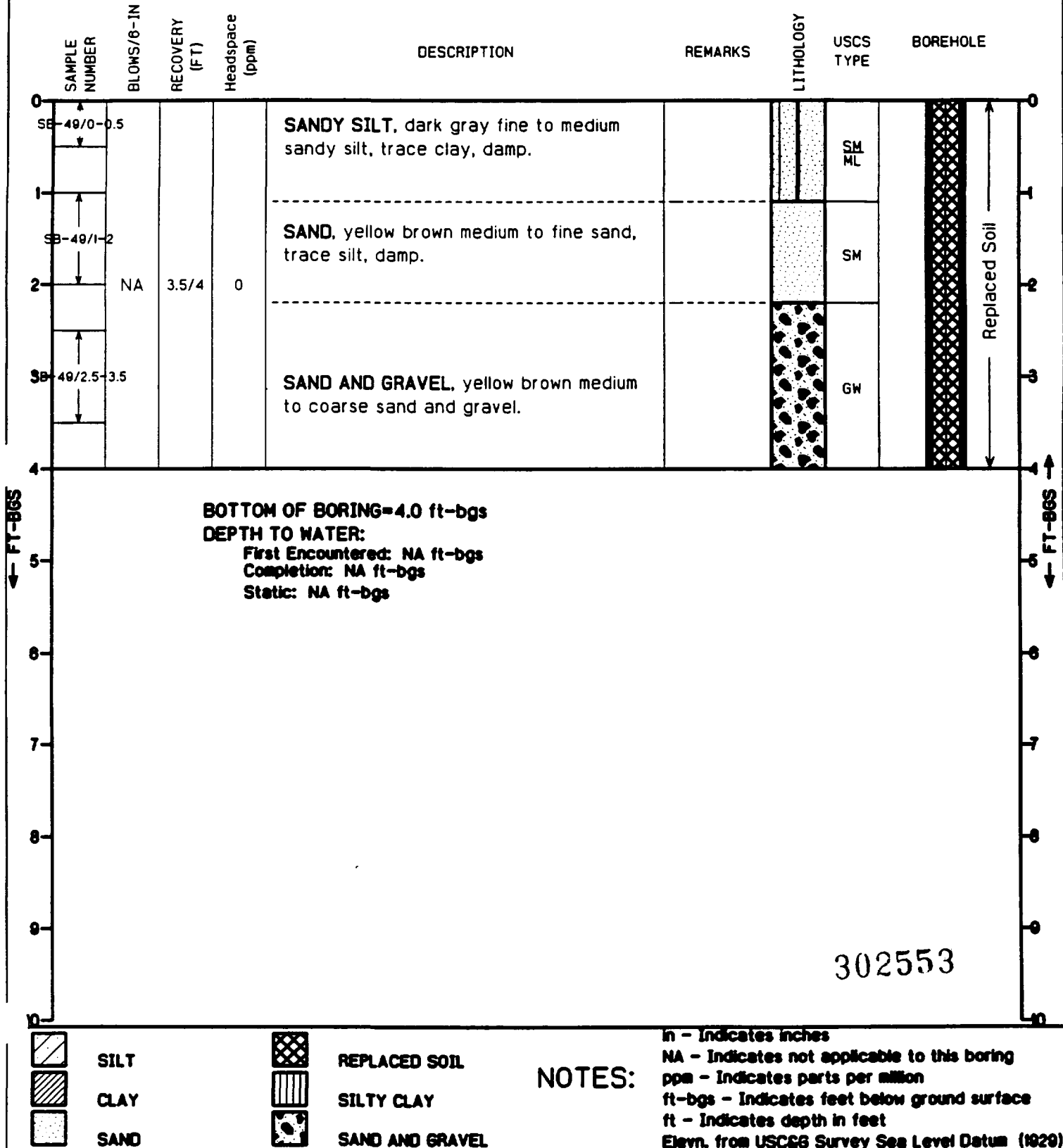
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG6 Survey Sea Level Datum (1929)

LOG OF BORING: SB-49

Page 1 of 1

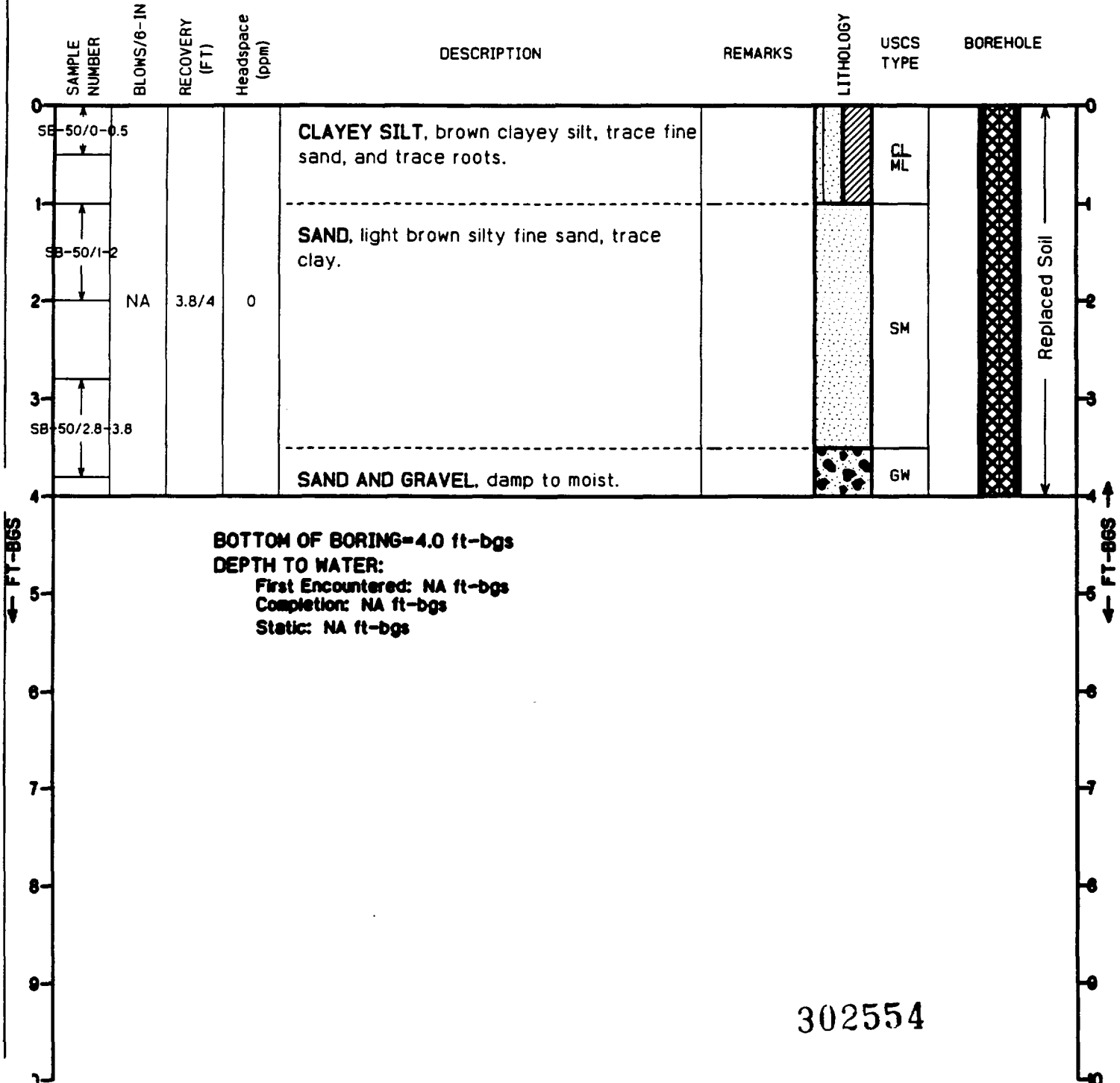
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 87.70
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412247.3182 / E 359210.7414	



LOG OF BORING: SB-50

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 85.20
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/06/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/06/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412185.8013 / E 359272.3258	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

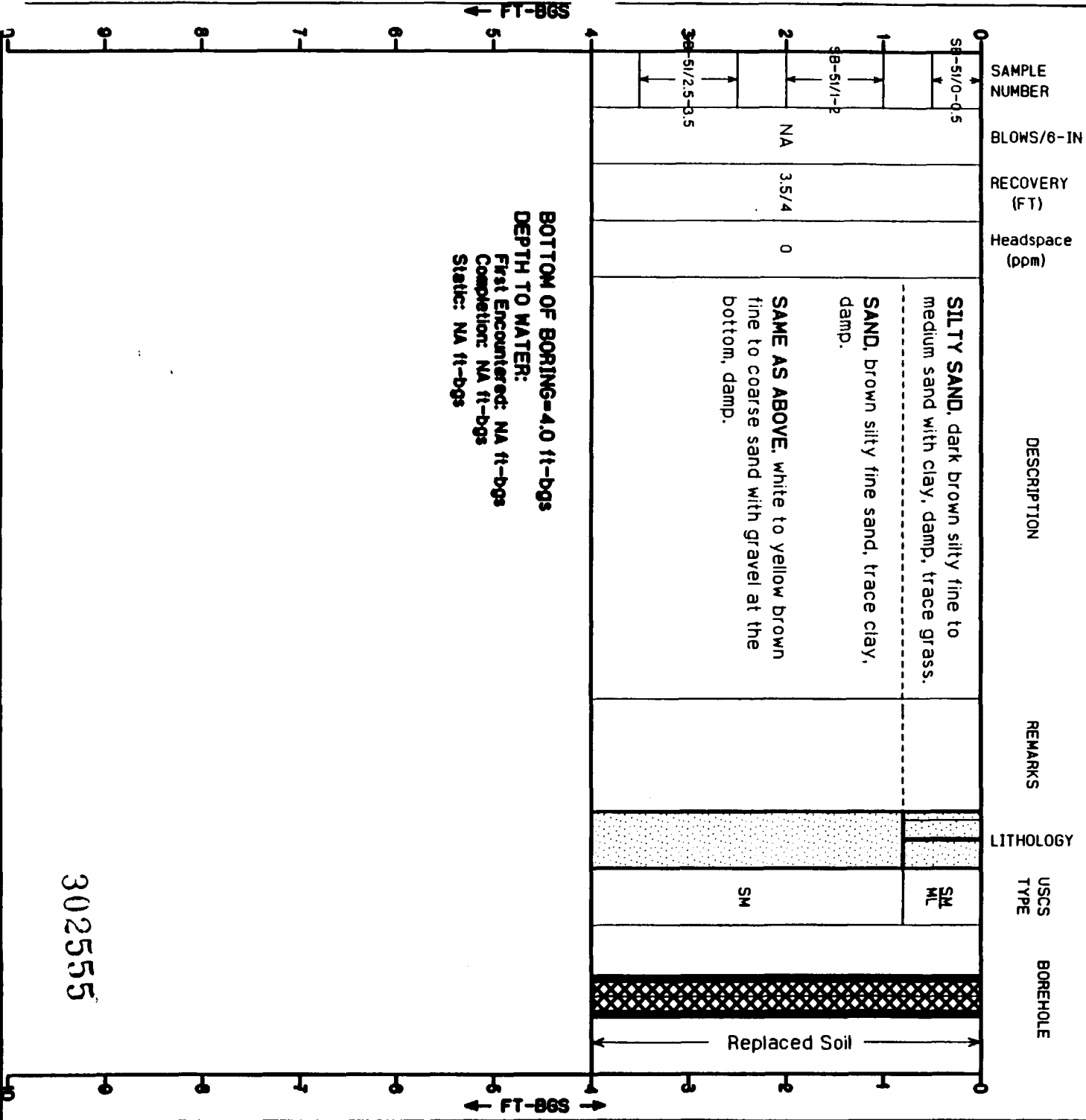
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-51

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 64.30
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 41216.1264 / E 359313.7405	



SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

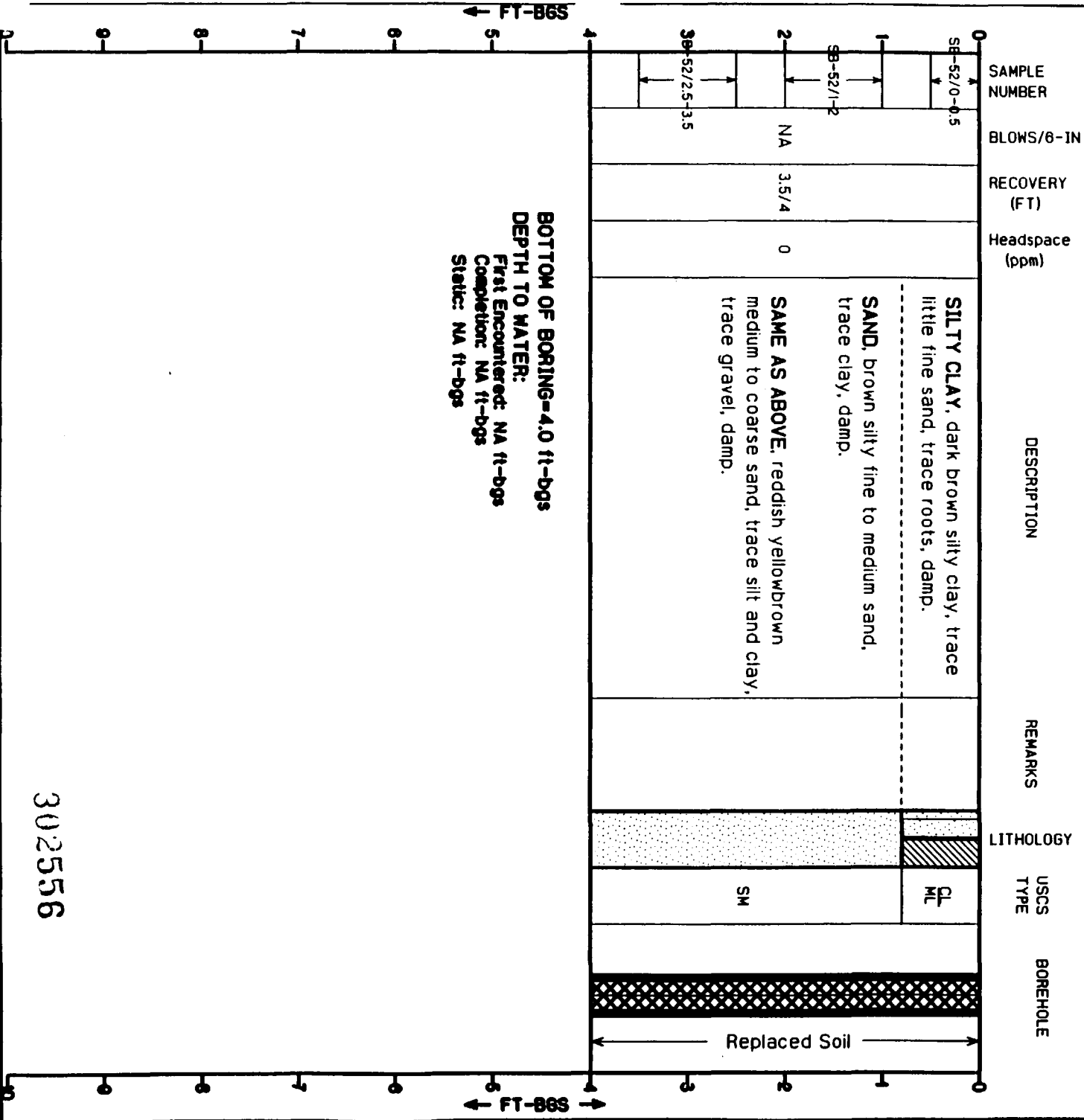
NOTES:

n - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-52

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 62.90
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412125.5803 / E 359416.9405	



	SILT		REPLACED SOIL	NOTES: in - Indicates inches NA - Indicates not applicable to this boring ppm - Indicates parts per million ft-bgs - Indicates feet below ground surface ft - Indicates depth in feet Elevn. from USCGS Survey See Level Datum (1929)
	CLAY		SILTY CLAY	
	SAND		SAND AND GRAVEL	

LOG OF BORING: SB-53

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 84.30
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/06/94	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/06/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412177.0273 / E 359480.874	

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-53/0-0.5				SANDY CLAY, brown moist sandy clay.				
SB-53/1-2				SAME AS ABOVE, light brown sandy clay.				
NA	3.5	0		SAME AS ABOVE, light brown sandy clay with black angular gravel.			SM ML	
SB-53/2.5-3.5				SAME AS ABOVE, light brown sandy clay with angular white gravel.				
				SAME AS ABOVE, orange brown sandy clay				
				BOTTOM OF BORING=4.0 ft-bgs				
				DEPTH TO WATER:				
				First Encountered: NA ft-bgs				
				Completion: NA ft-bgs				
				Static: NA ft-bgs				
				Bentonite Grout				

302557



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

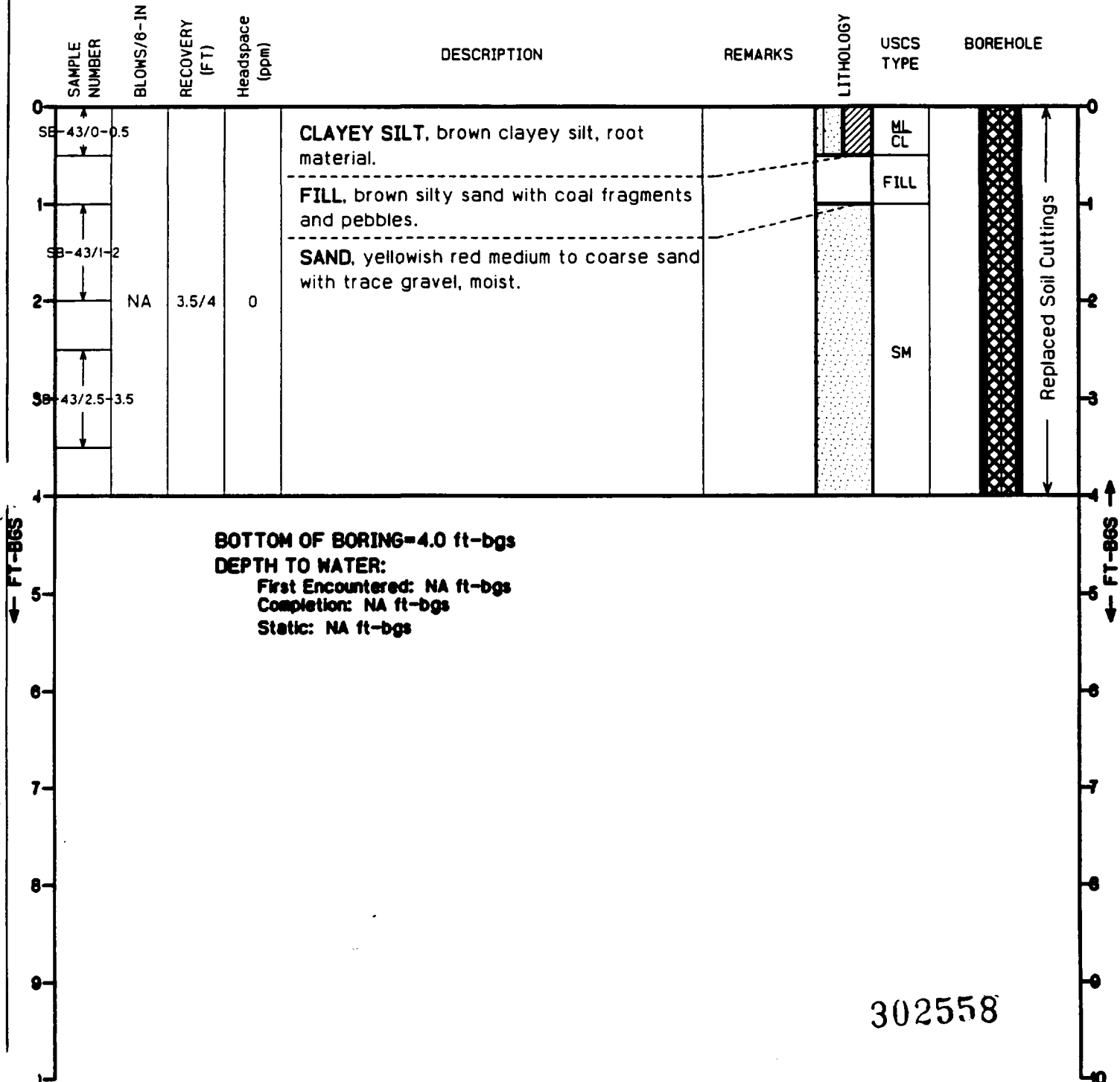
NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey See Level Datum (1929)

LOG OF BORING: SB-43

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 68.70
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412863.9935 / E 359298.5603	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

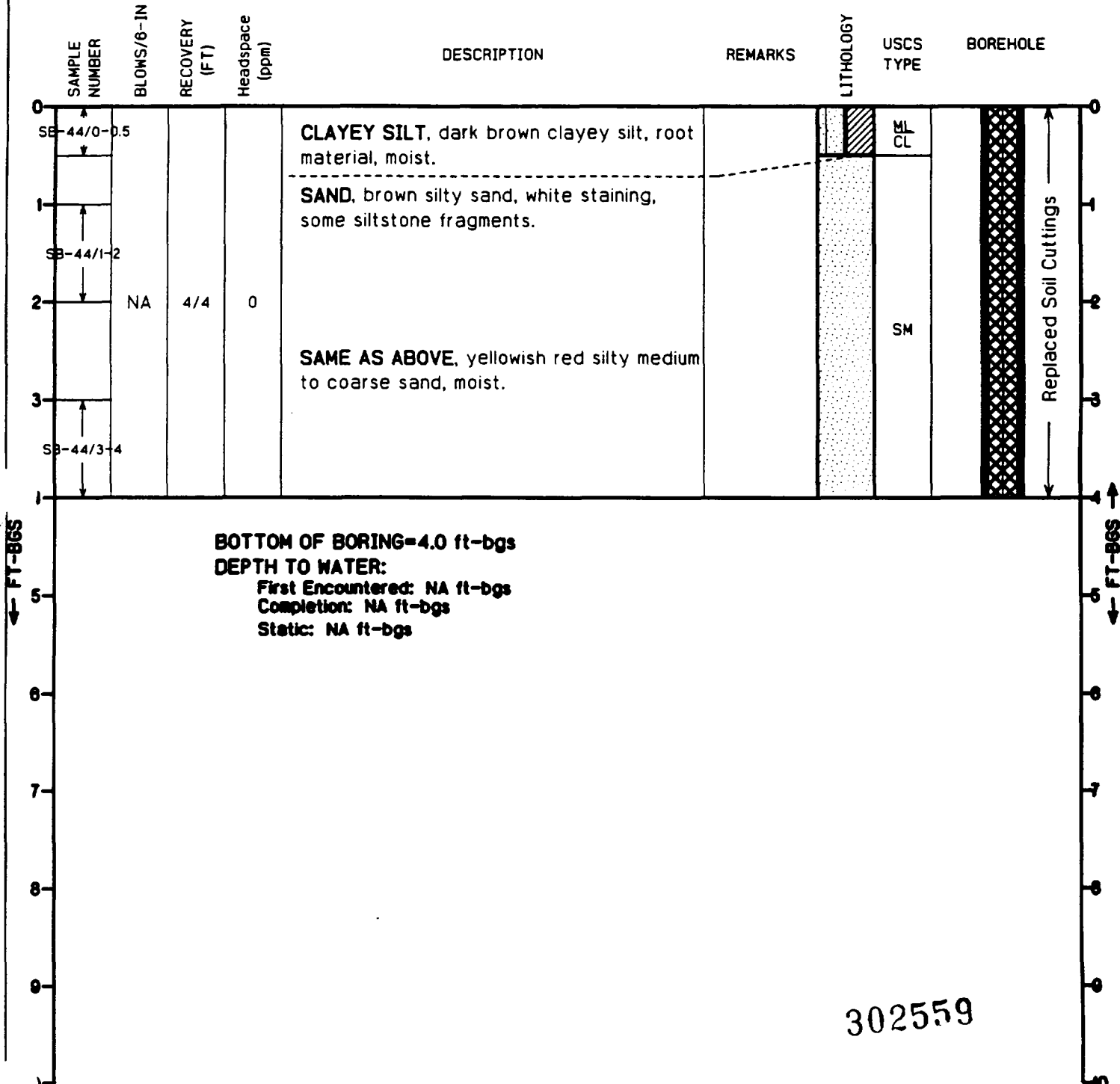
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-44

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 89.50
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412525.8661 / E 359207.2211	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

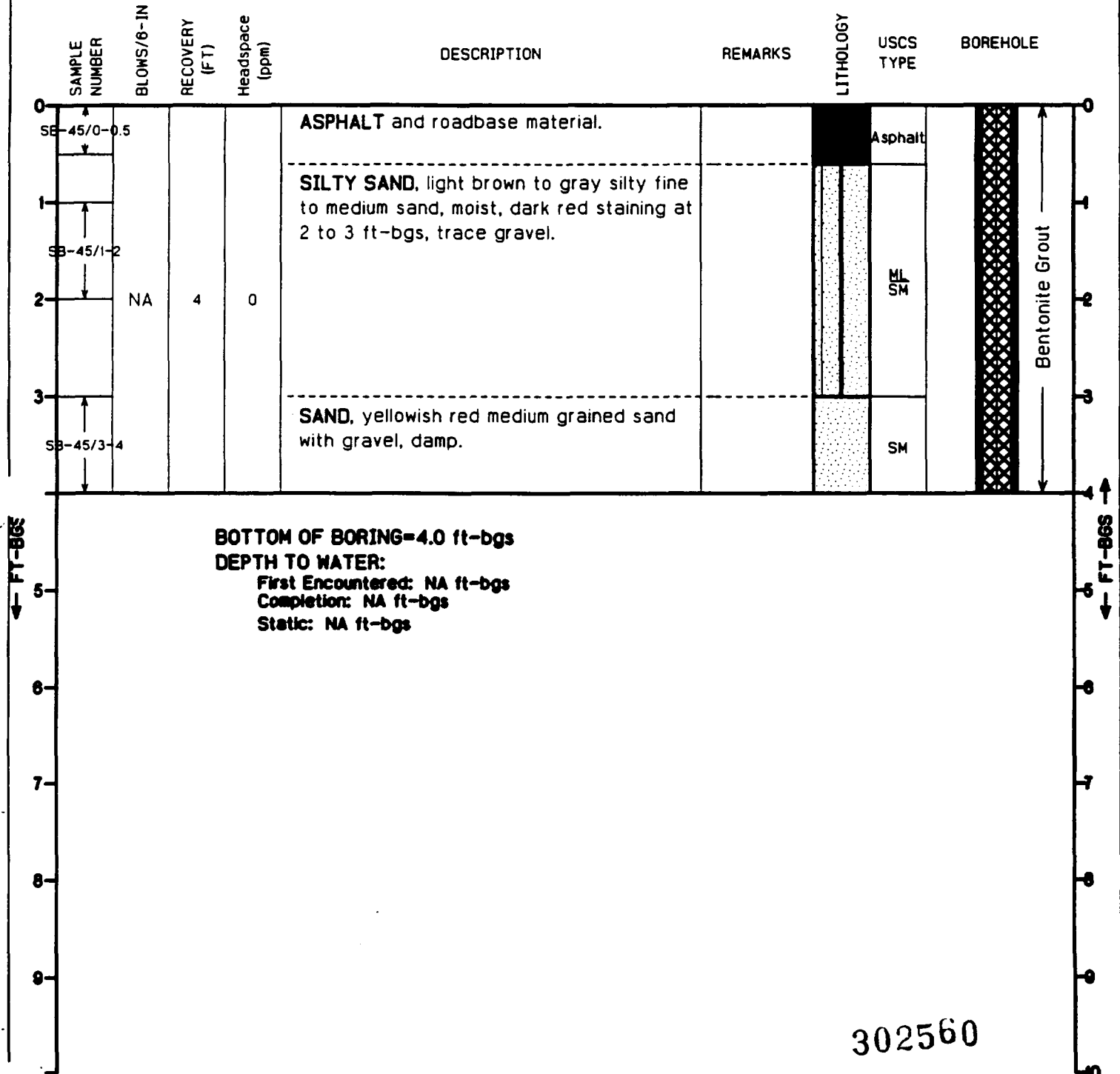
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-45

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 85.10
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412689.4634 / E 359308.0420	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

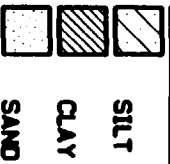
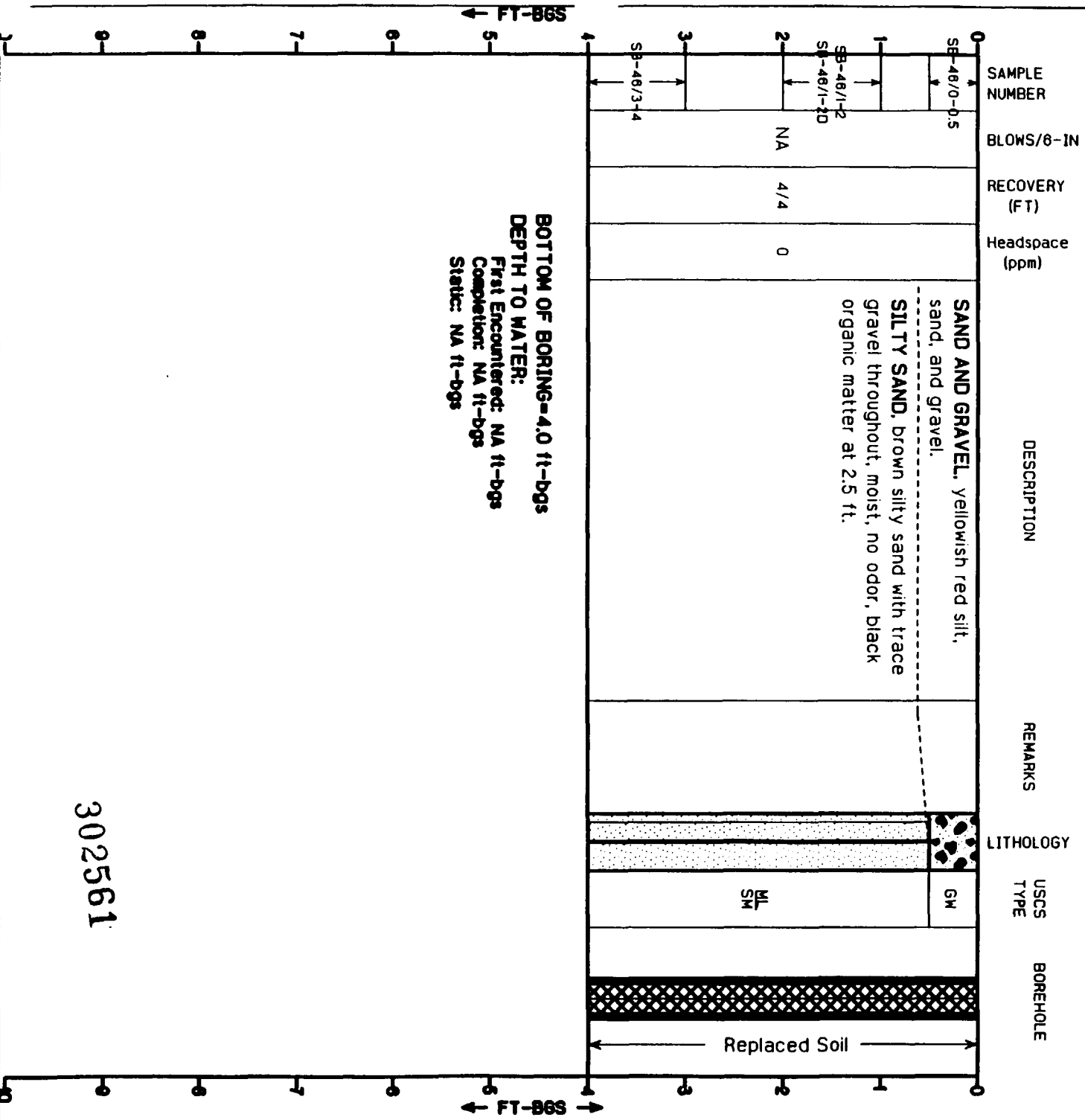
LOG OF BORING: SB-46

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/07/94
DATE COMPLETED: 12/07/94

DILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DILLING CO.: NCP Analytical
BOREHOLE/Well DIAMETER: 2-inch
DILLING BIT: Drive Point
NORTHING/EASTING: N 412580.2085 / E 359329.5222

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 67.70
DILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



SILT
CLAY
SAND

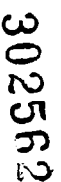
REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCG Survey See Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 87.40
DRILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



First Encountered: NA ft-dgs
Completion: NA ft-dgs
Static: NA ft-dgs

REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

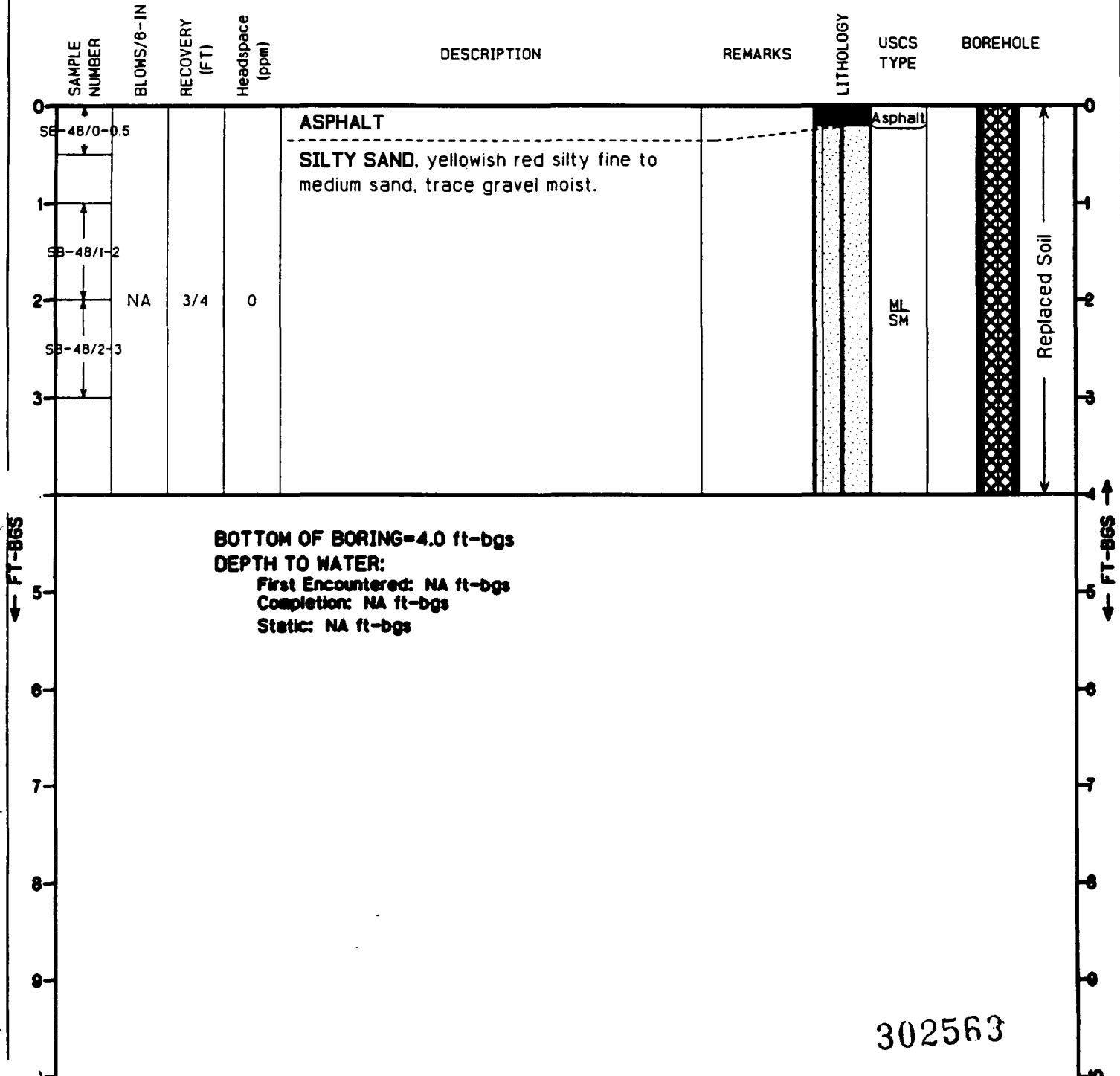
NOTES:

ft - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevm. from USCGS Survey Sea Level Datum (Mean

LOG OF BORING: SB-48

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 66.50
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/07/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/07/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412775.4083 E 359450.0130	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

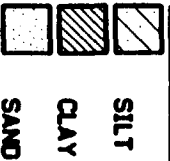
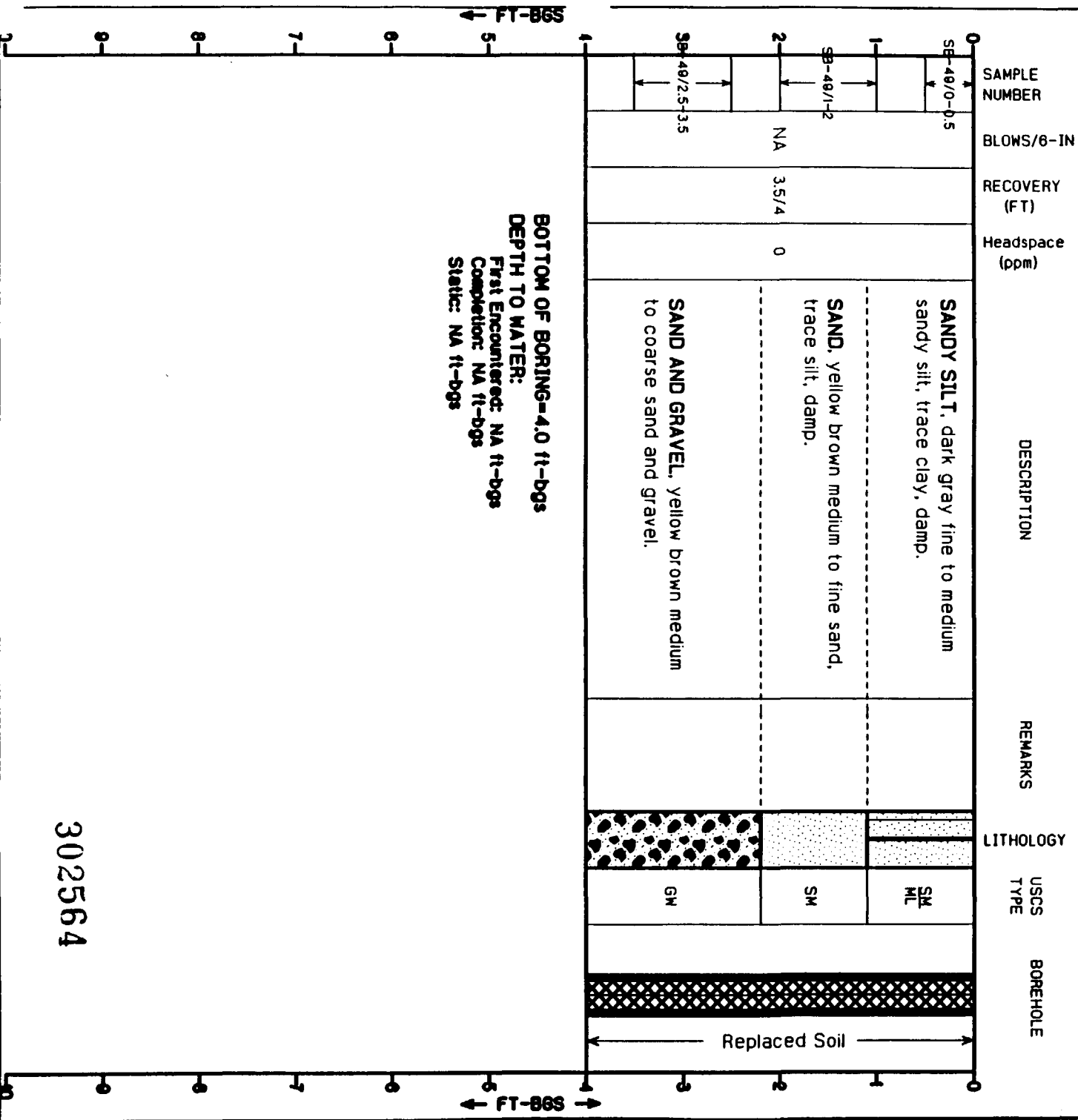
LOG OF BORING: SB-49

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Hoorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/06/94
DATE COMPLETED: 12/06/94

DRILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DRILLING CO.: NCP Analytical
BOREHOLE/Well DIAMETER: 2-inch
DRILLING BIT: Drive Point
NORTHING/EASTING: N 412247.3182 / E 359210.7414

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 67.70
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



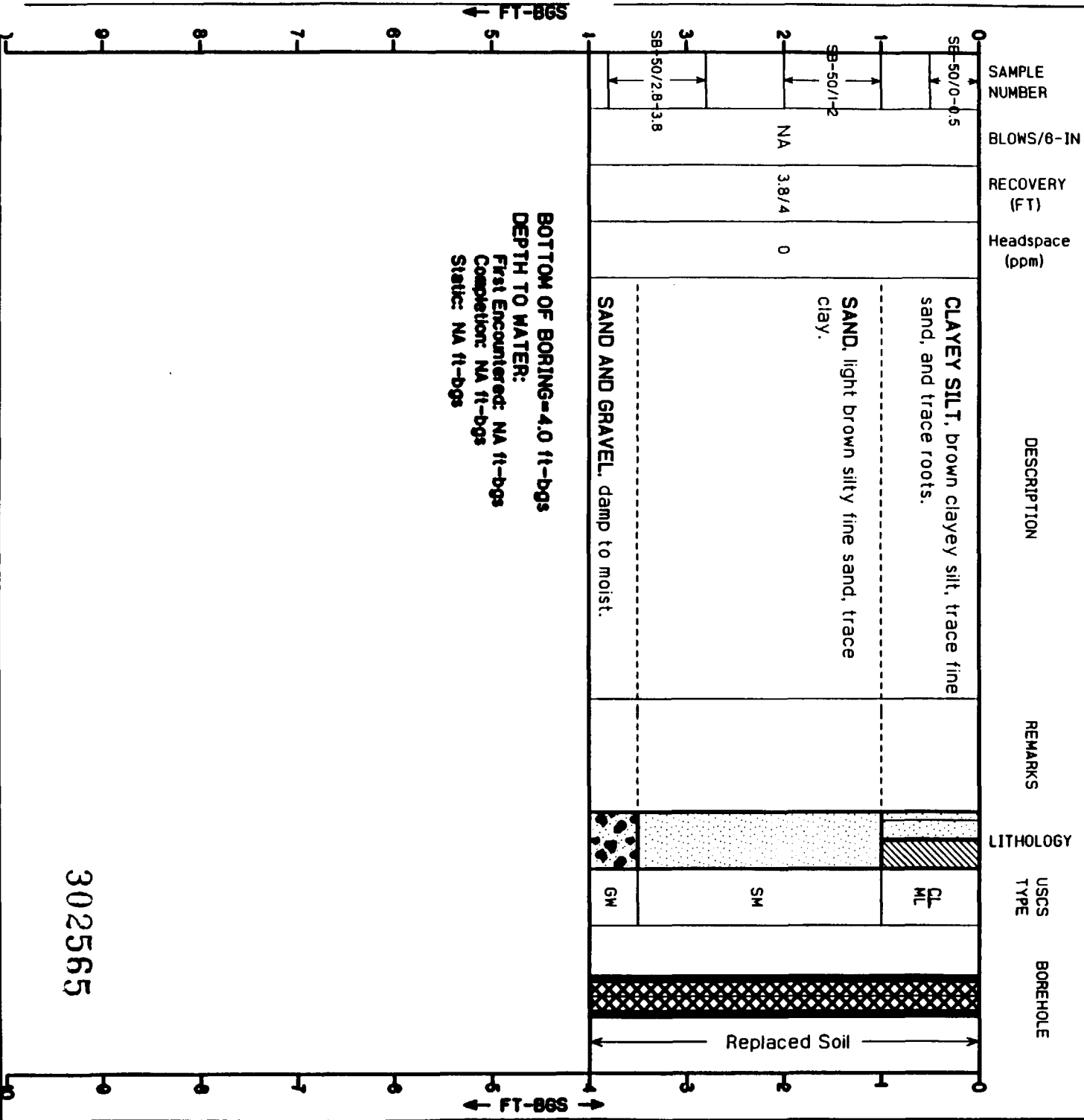
NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-50

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 65.20
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412185.6013 / E 359272.3258	



SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey See Level Datum (1929)

Page 1 of 1

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 64.30
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



REPLACED SOIL.
SILTY CLAY
SAND AND GRAVEL.

in - Indicates inches
NA - Indicates not applicable to this boring
pds - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCS68 Survey Sea Level Datum (1929)

LOG OF BORING: SB-52

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 62.90
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412125.5803 / E 359416.9408	

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-52/0-0.5				SILTY CLAY, dark brown silty clay, trace little fine sand, trace roots, damp.		CL ML		
SB-52/1-2				SAND, brown silty fine to medium sand, trace clay, damp.				
2	NA	3.5/4	0	SAME AS ABOVE, reddish yellowbrown medium to coarse sand, trace silt and clay, trace gravel, damp.		SM		
SB-52/2.5-3.5								
								Replaced Soil

BOTTOM OF BORING=4.0 ft-bgs
 DEPTH TO WATER:
 First Encountered: NA ft-bgs
 Completion: NA ft-bgs
 Static: NA ft-bgs

302567



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey See Level Datum (1929)

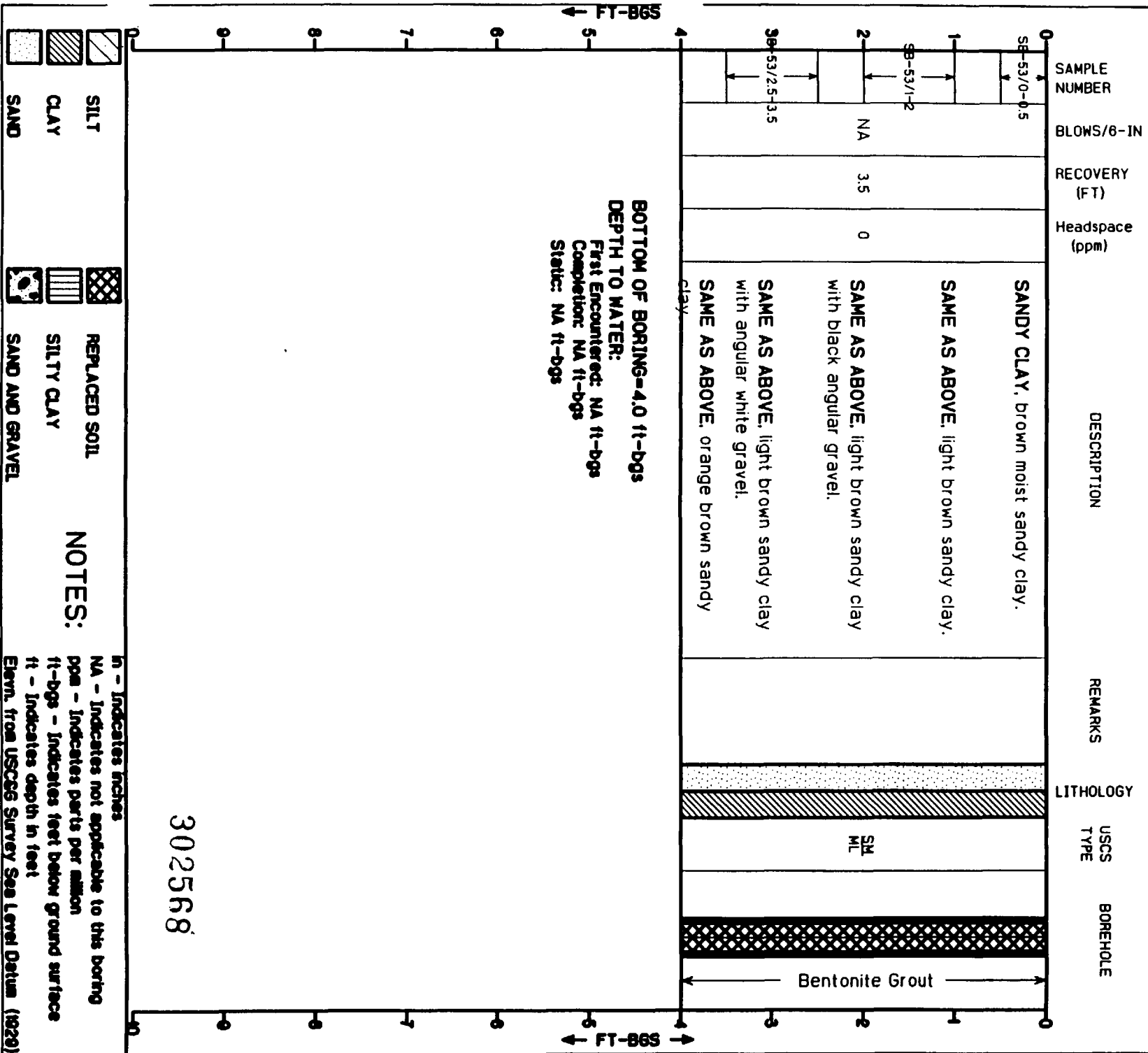
LOG OF BORING: SB-53

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.002
DATE STARTED: 12/08/94
DATE COMPLETED: 12/08/94

DRILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 2-inch
DRILLING BIT: Drive Point
NORTHING/EASTING: N 412177.0273 / E 359480.8749

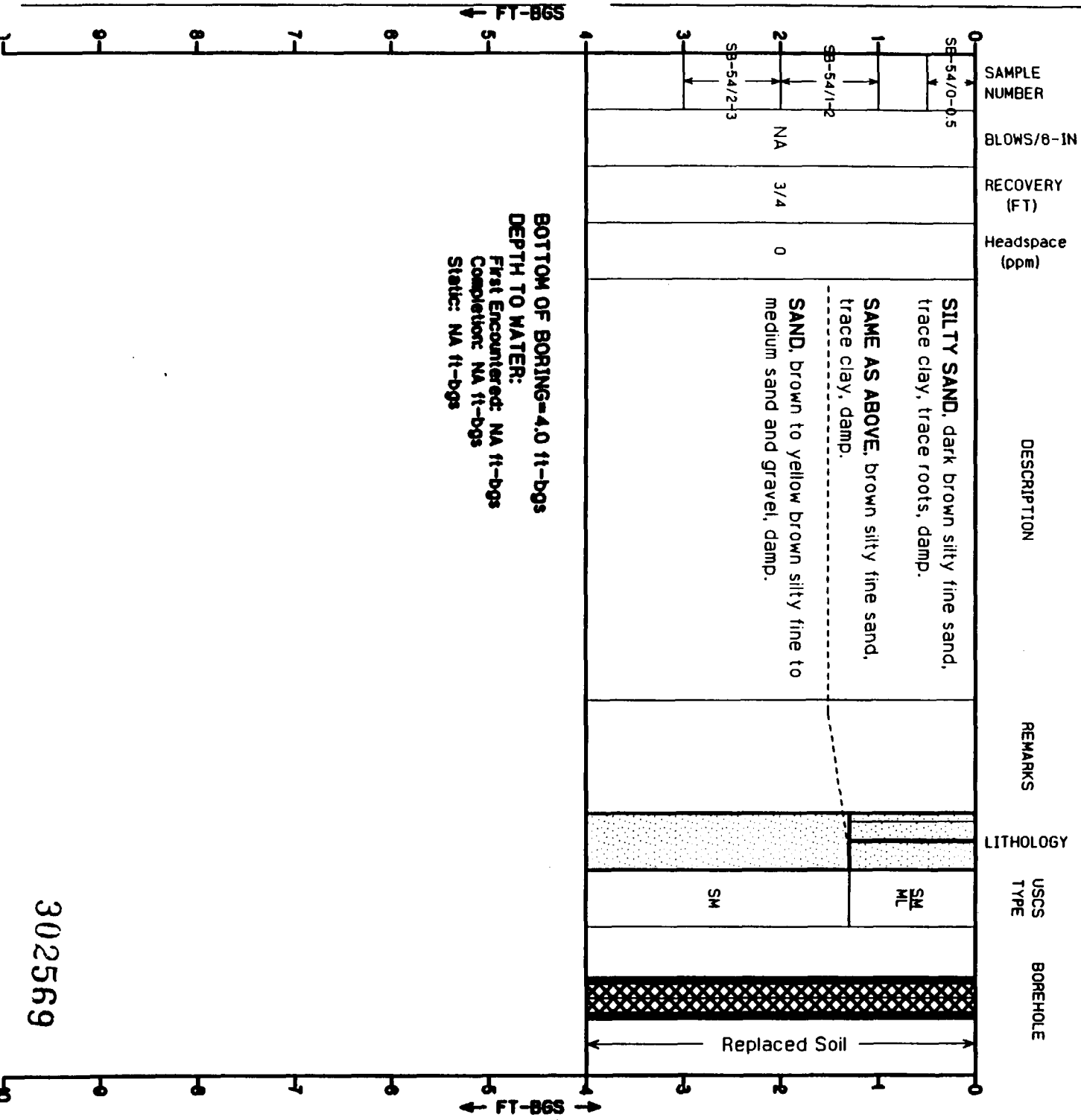
TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 64.30
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart









LOG OF BORING: SB-54

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 85.50
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/WEEL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412265.4222 / E 359502.8330	



	SILT		REPLACED SOIL
	CLAY		SILTY CLAY
	SAND		SAND AND GRAVEL

NOTES:

in - Indicates inches

NA - Indicates not applicable to this boring

ppm - Indicates parts per million

ft-bgs - Indicates feet below ground surface

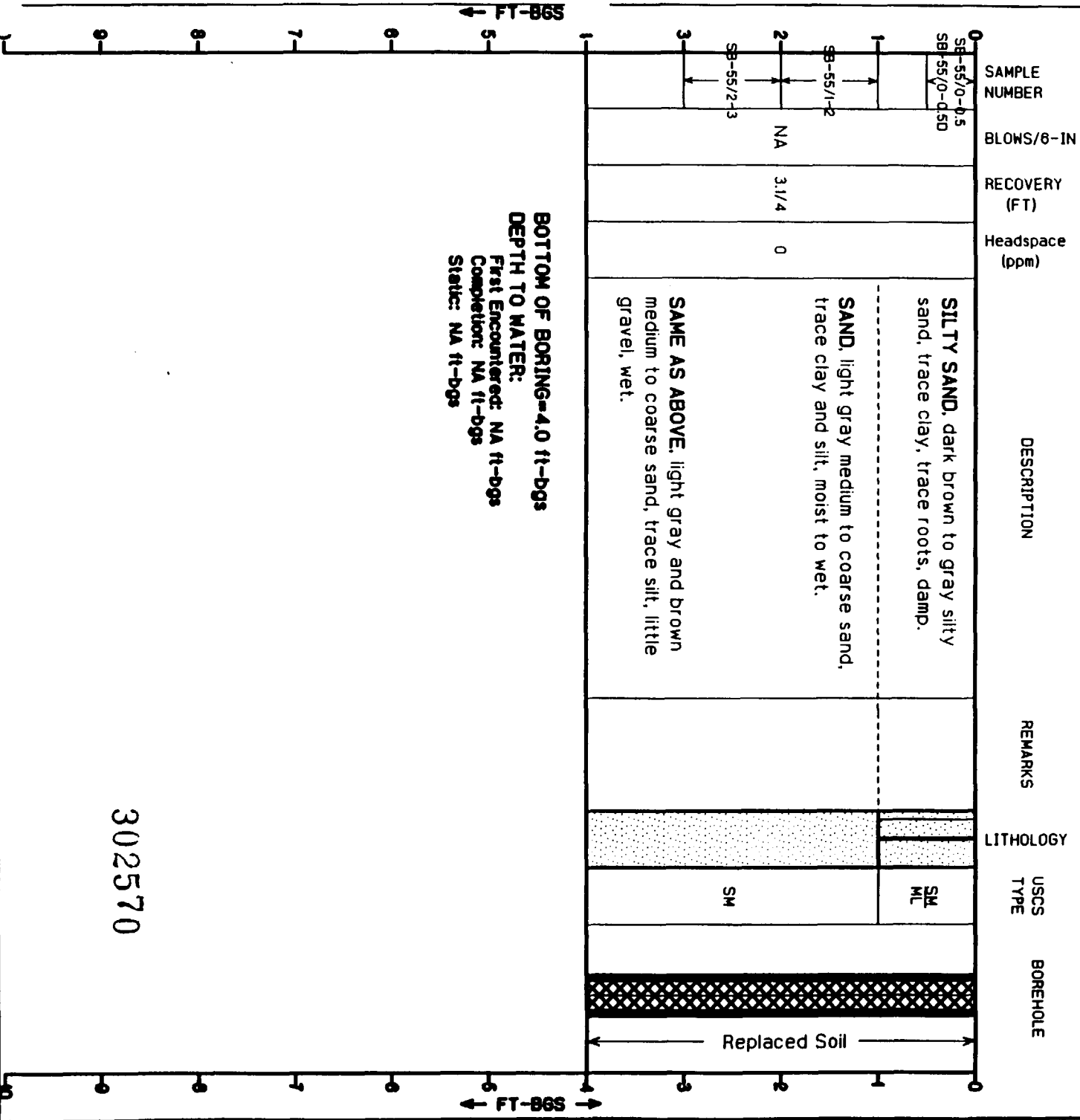
ft - Indicates depth in feet

Elevn. from USCG Survey See Level Datum (1929)

LOG OF BORING: SB-55

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 58.90
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/06/94	BOREHOLE/WEEL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/06/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411988.6519 / E 359489.4136	



SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

NOTES:

in - Indicates inches

NA - Indicates not applicable to this boring

ppm - Indicates parts per million

ft-bgs - Indicates feet below ground surface

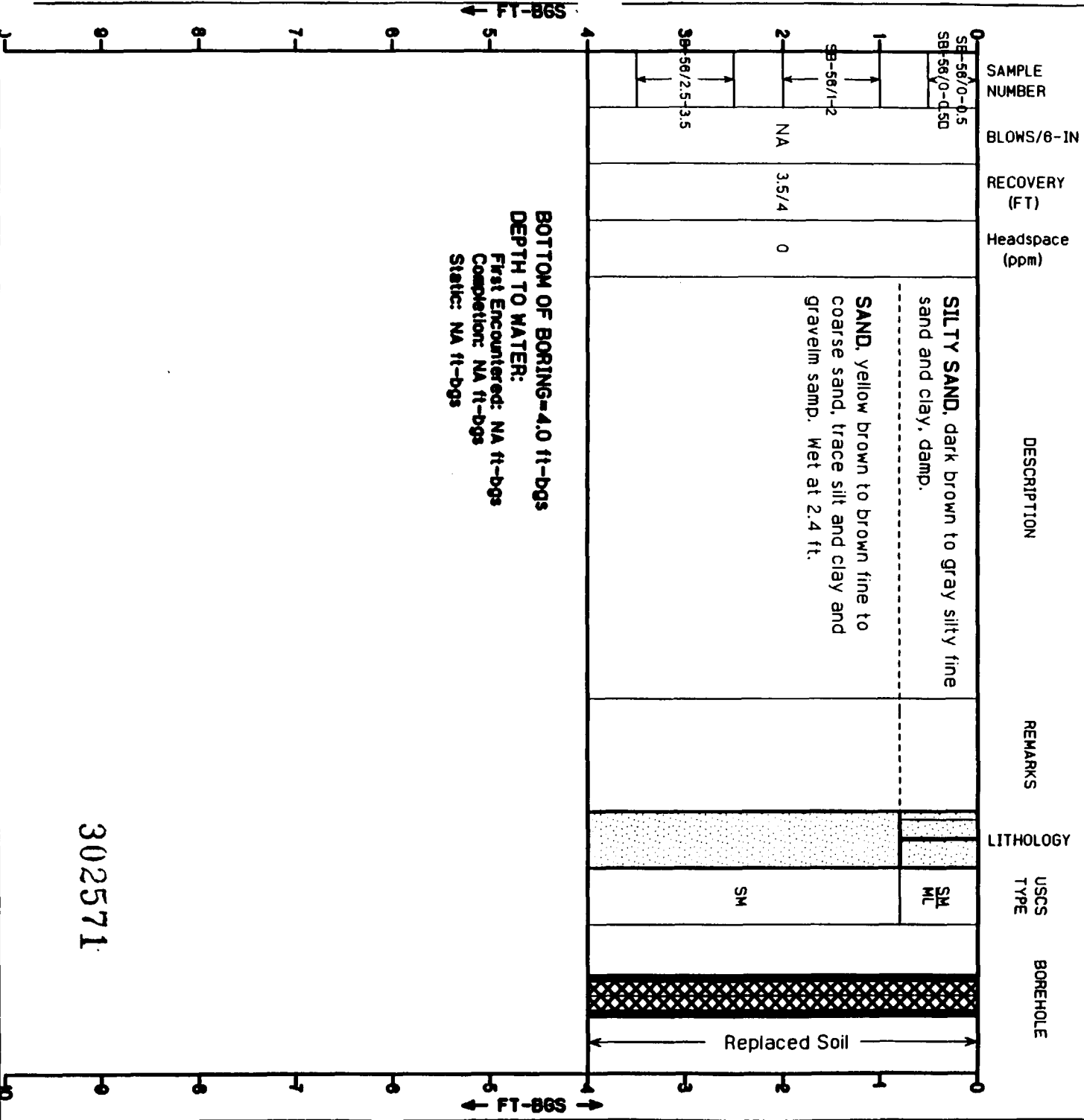
ft - Indicates depth in feet

Elevn. from USCGS Survey See Level Datum (1929)

LOG OF BORING: SB-56

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 60.50
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/84	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/84	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412129.8142 / E 359650.5270	



SILT
 CLAY
 SAND

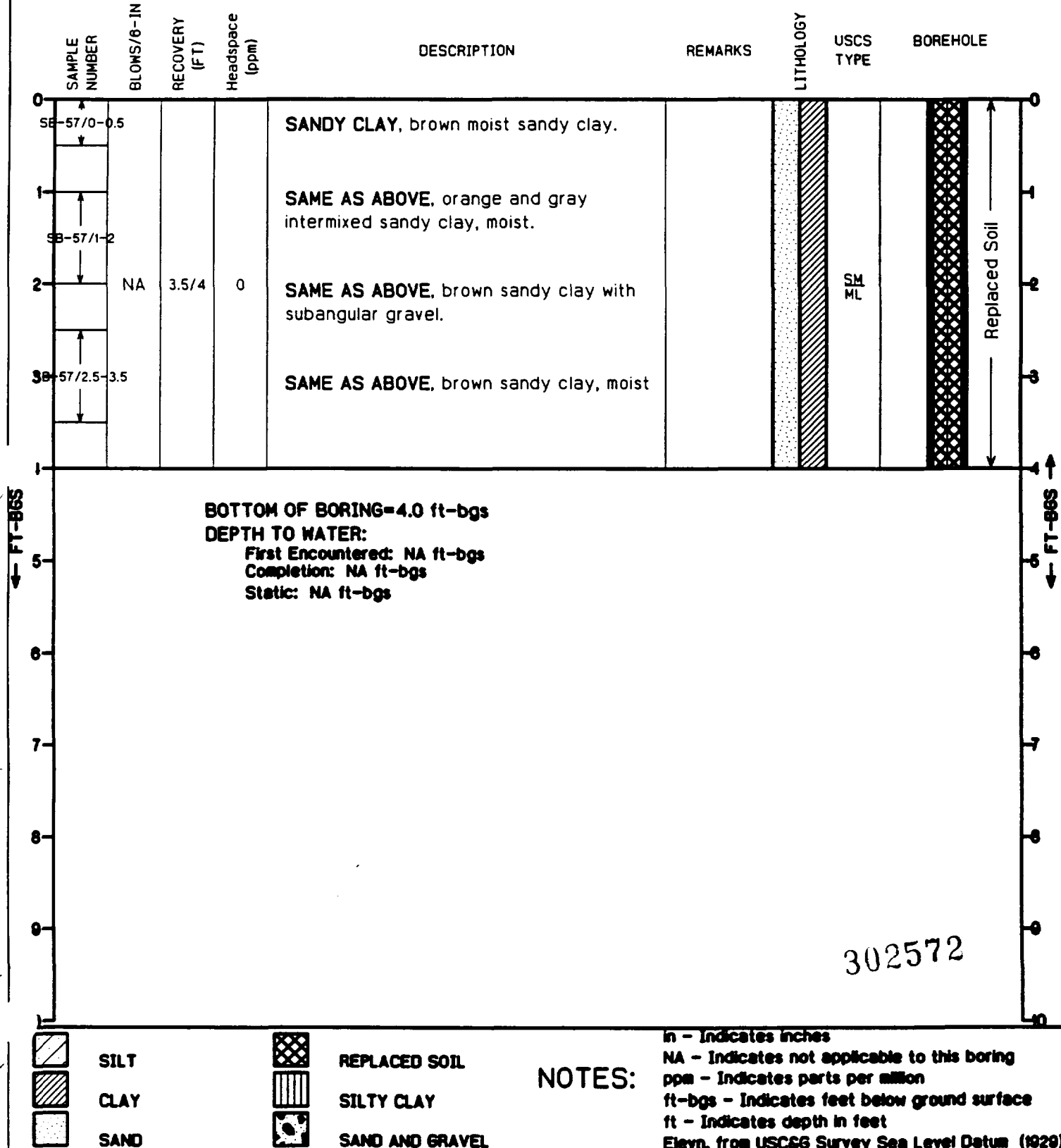
REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

NOTES:
n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-57

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 58.80
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411991.9059 / E 359654.3451	

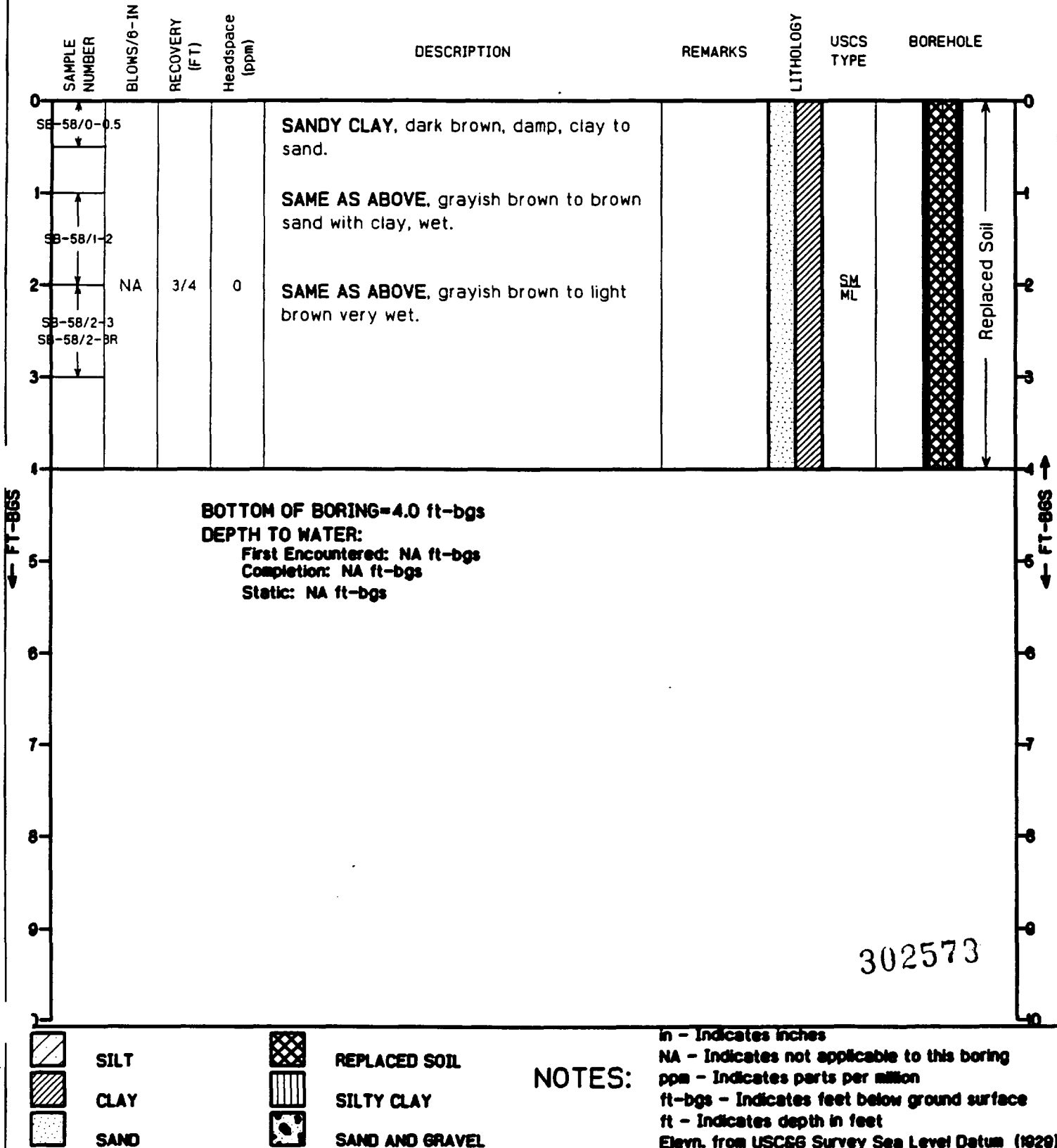


302572

LOG OF BORING: SB-58

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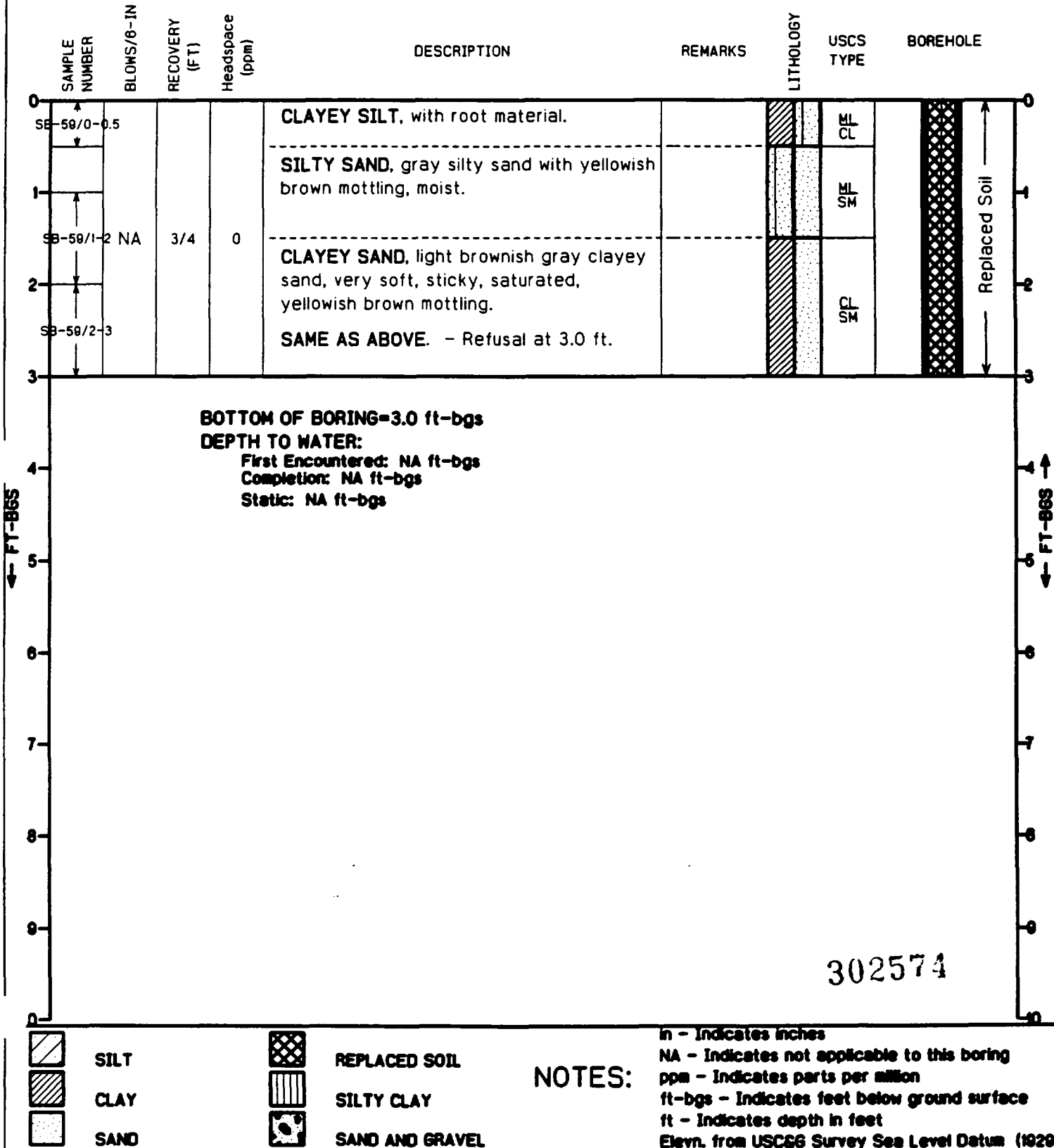
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 58.83
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412035.9002 / E 359770.2848	



LOG OF BORING: SB-59

Page 1 of 1

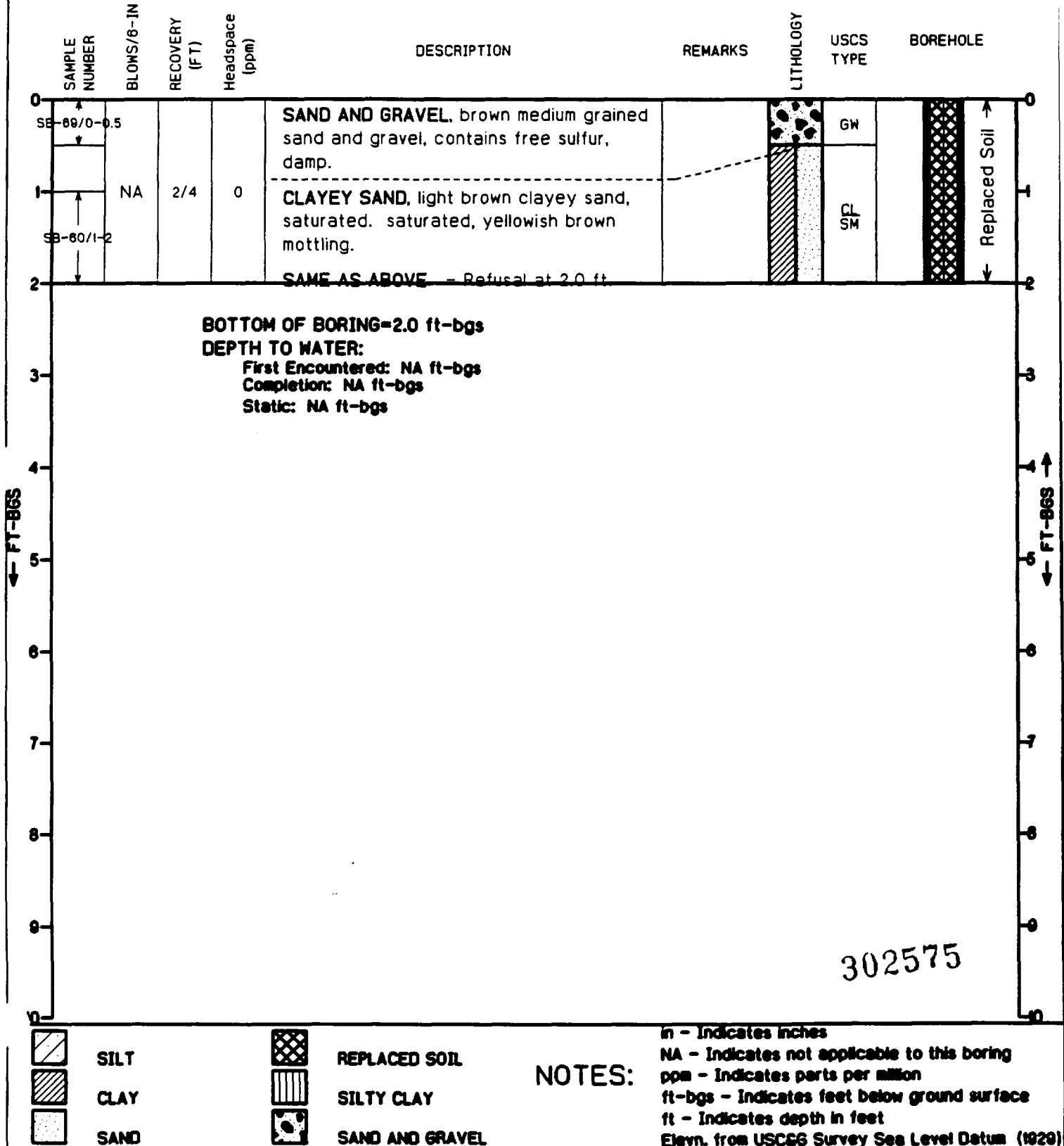
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 53.10
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411795.2775 / E 359703.3886	



LOG OF BORING: SB-60

Page 1 of 1

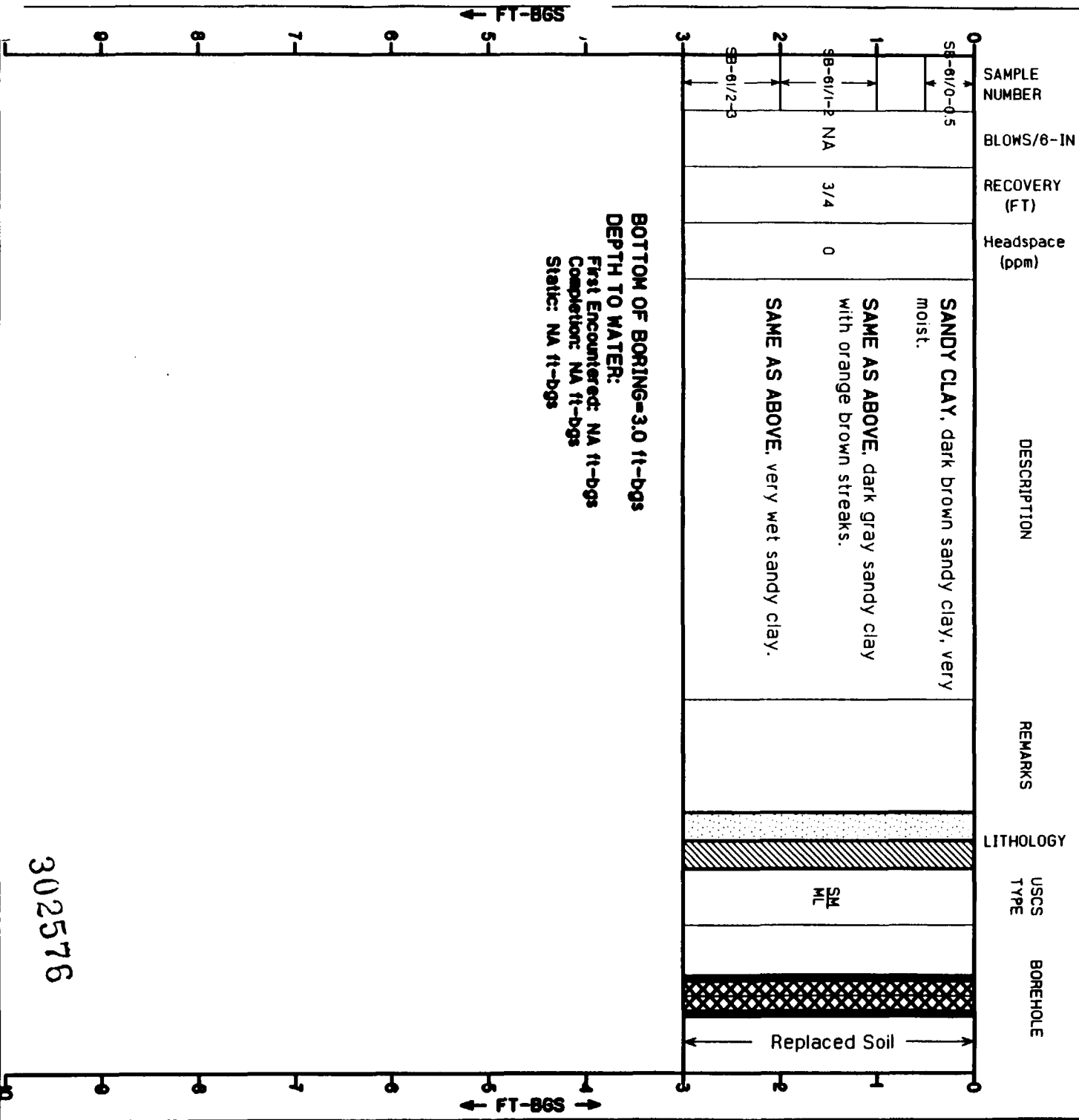
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 2.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 53.90
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411912.8405 / E 359839.2527	



LOG OF BORING: SB-61

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 53.80
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/04	BOREHOLE/Well DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/04	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 41873.8955 / E 359816.8144	



SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

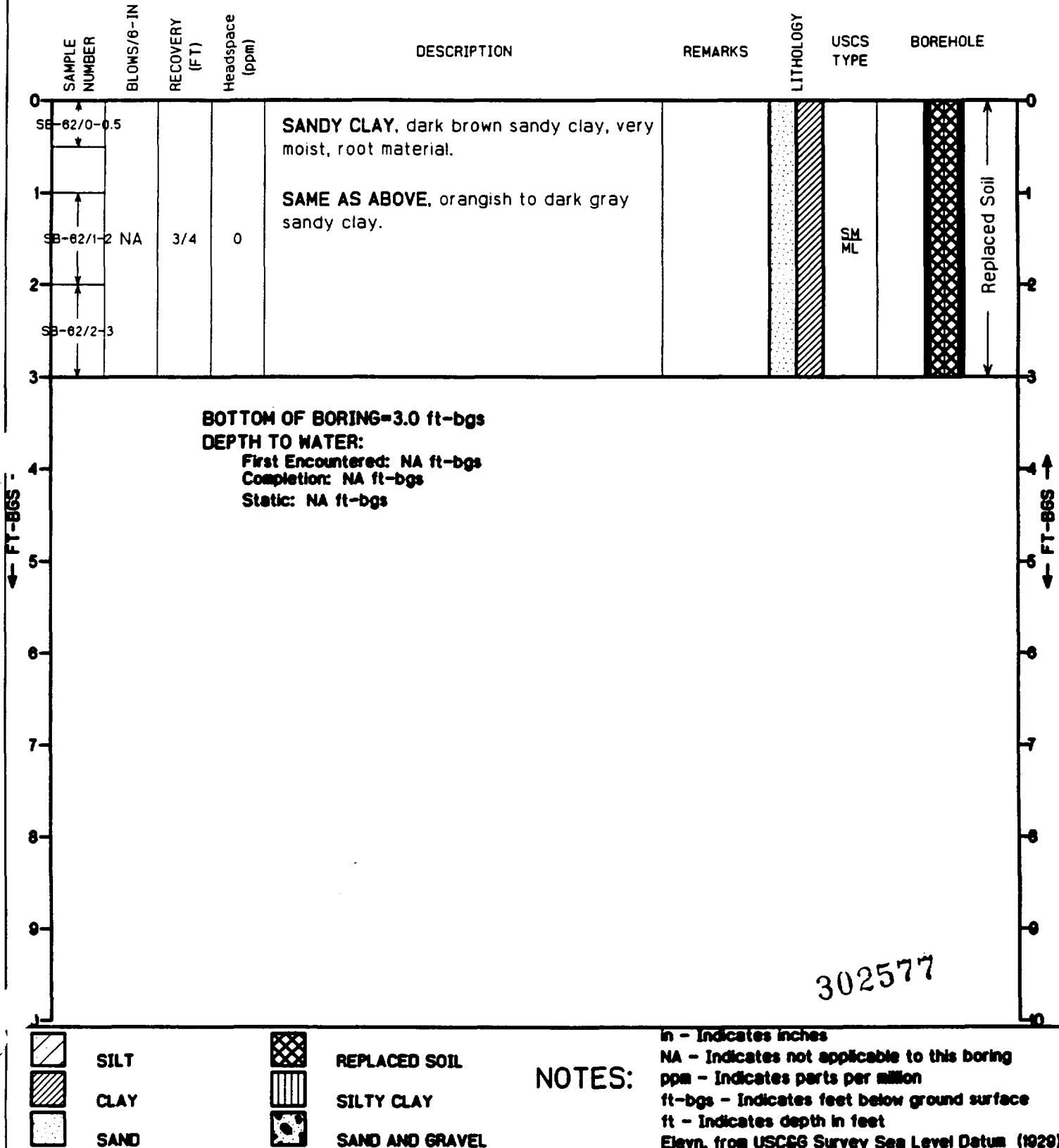
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey See Level Datum (1929)

LOG OF BORING: SB-62

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 53.20
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411847.9809 / E 359780.7770	



Page 1 of 1

TOTAL BORING DEPTH (ft): 3.0
GROUND SURF. ELEV. (ft-msl): 55.00
DRILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

302578

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCG Survey Sea Level Datum (1984)

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey Sea Level Datum (1984)

LOG OF BORING: SB-64

Page 1 of 1







CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 2.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 52.10
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/08/94	BOREHOLE/HELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/08/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 41794.6461 / E 360005.5424	

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SE-64/0-0.5								
1	NA	2	0	SANDY CLAY, dark brown sandy clay, wet.			SM ML	
SB-64/1-2				SAME AS ABOVE, orangish gray sandy clay, wet.				
								Replaced Soil

BOTTOM OF BORING=2.0 ft-bgs
 DEPTH TO WATER:
 First Encountered: NA ft-bgs
 Completion: NA ft-bgs
 Static: NA ft-bgs

FT-BGS

302579

	SILT		REPLACED SOIL
	CLAY		SILTY CLAY
	SAND		SAND AND GRAVEL

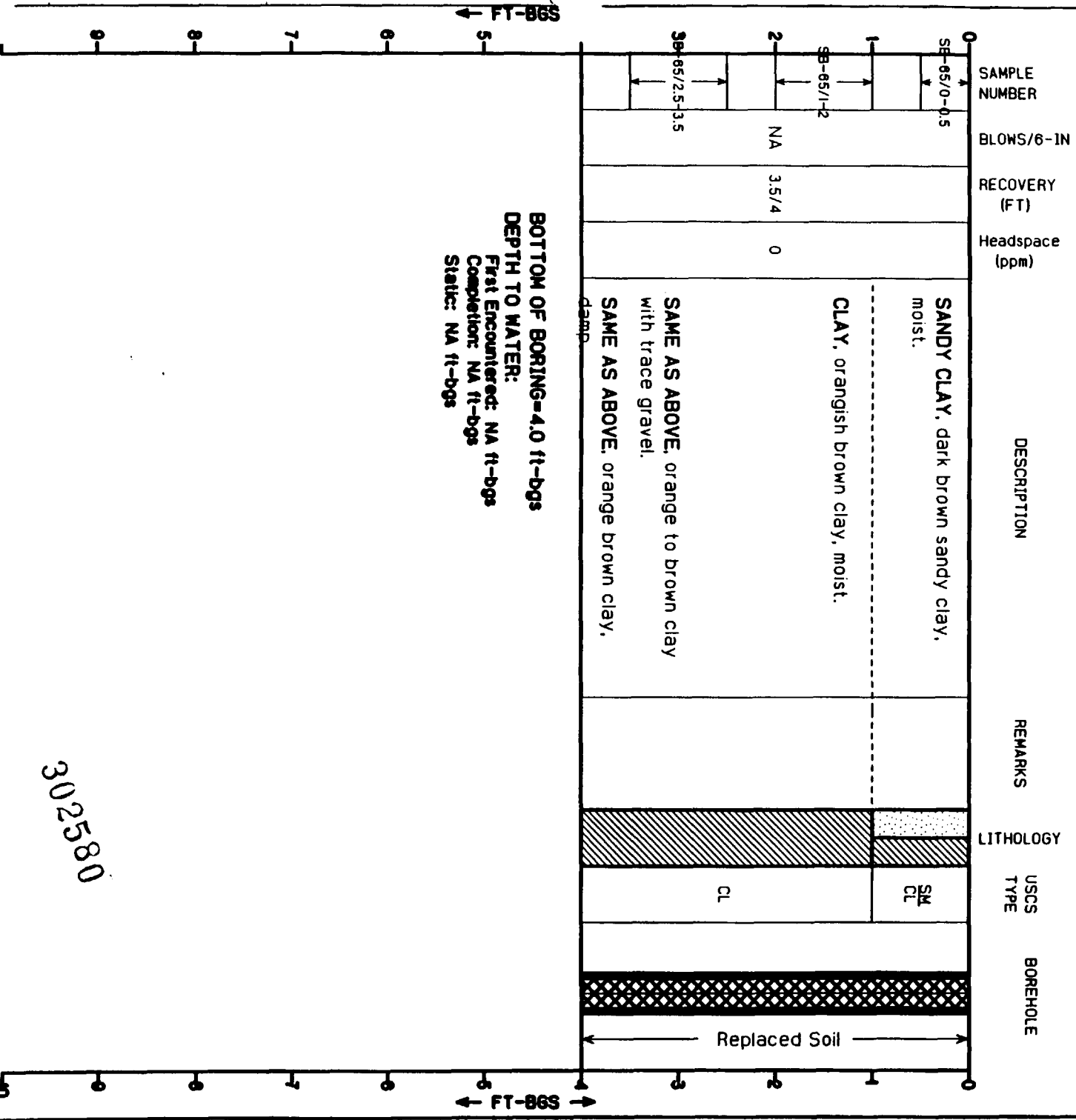
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey See Level Datum (1929)

LOG OF BORING: SB-65

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801460.002 DATE STARTED: 12/06/84 DATE COMPLETED: 12/06/84	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/WELL DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 412302.1749 / E 359398.6209	TOTAL BORING DEPTH (ft): 4.0 GROUND SURF. ELEV. (ft-msl): 88.10 DRILLERS: Tom GEOLOGIST: JAB CONSULTANT: McLaren/Hart
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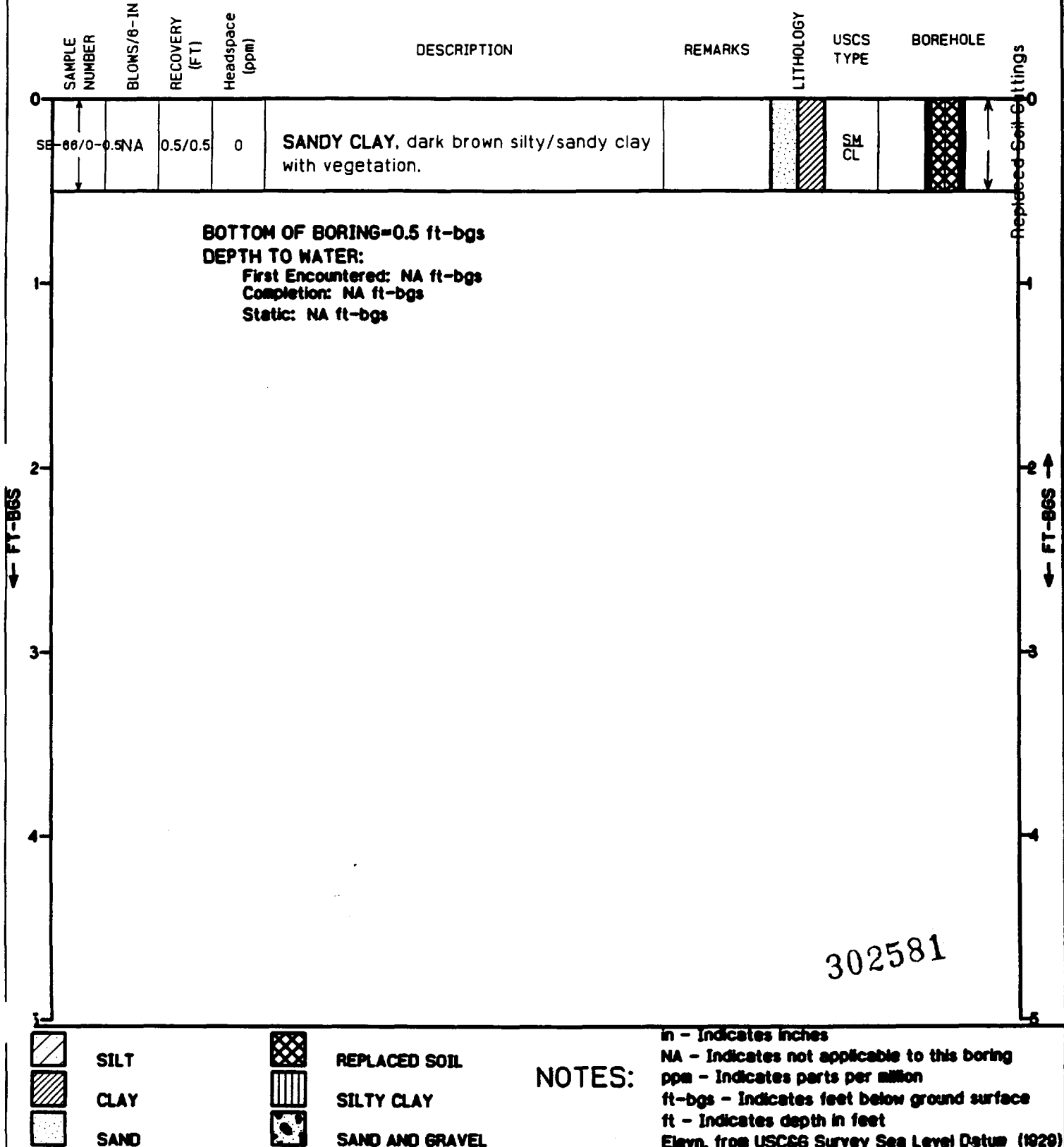


	SILT		REPLACED SOIL	NOTES: n - Indicates inches NA - Indicates not applicable to this boring ppm - Indicates parts per million ft-bgs - Indicates feet below ground surface ft - Indicates depth in feet Elevn. from USCGS Survey Sea Level Datum (1929)
	CLAY		SILTY CLAY	
	SAND		SAND AND GRAVEL	

LOG OF BORING: SB-66

Page 1 of 1

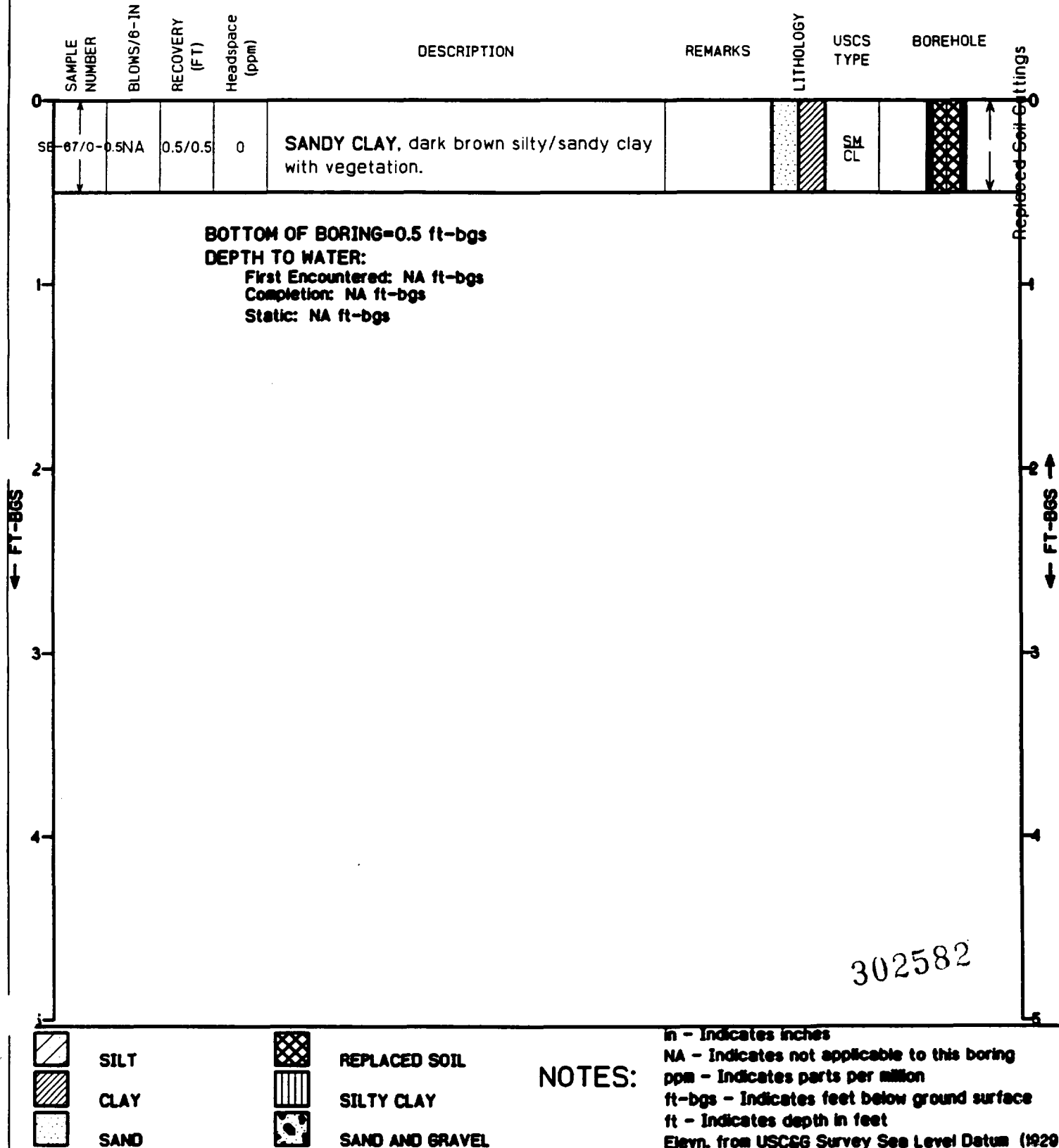
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 0.5
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl): 85.80
PROJECT NO.: 09.0801460.002	DRILLING CO.: N/A	DRILLERS: JAB
DATE STARTED: 12/14/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/14/94	DRILLING BIT: N/A	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412348.5320 / E 359474.5081	



LOG OF BORING: SB-67

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 0.5
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl): 65.20
PROJECT NO.: 09.0801480.002	DRILLING CO.: N/A	DRILLERS: JAB
DATE STARTED: 12/14/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/14/94	DRILLING BIT: N/A	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412311.7891 / E 359503.1810	



302582

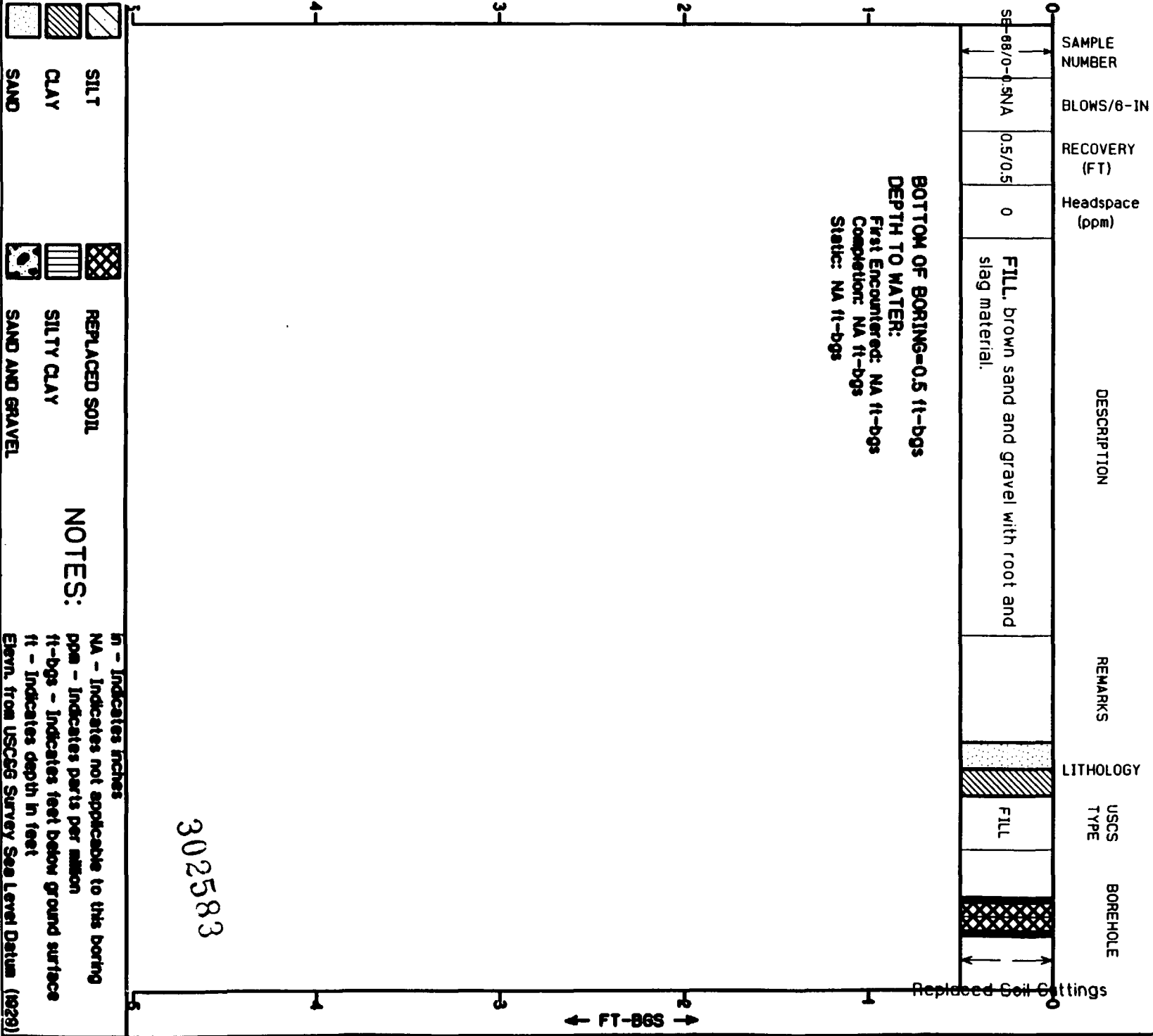
LOG OF BORING: SB-68

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 08.0801460.002
DATE STARTED: 12/14/94
DATE COMPLETED: 12/14/94

DILLING METHOD: Hand Auger
SAMPLING METHOD: Grab
DRILLING CO.: N/A
BOREHOLE/Well DIAMETER: 2-inch
DRILLING BIT: N/A
NORTHING/EASTING: N 412024.7686 / E 359874.8182

TOTAL BORING DEPTH (ft): 0.5
GROUND SURF. ELEV. (ft-msl): 58.40
DRILLERS: JAB
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

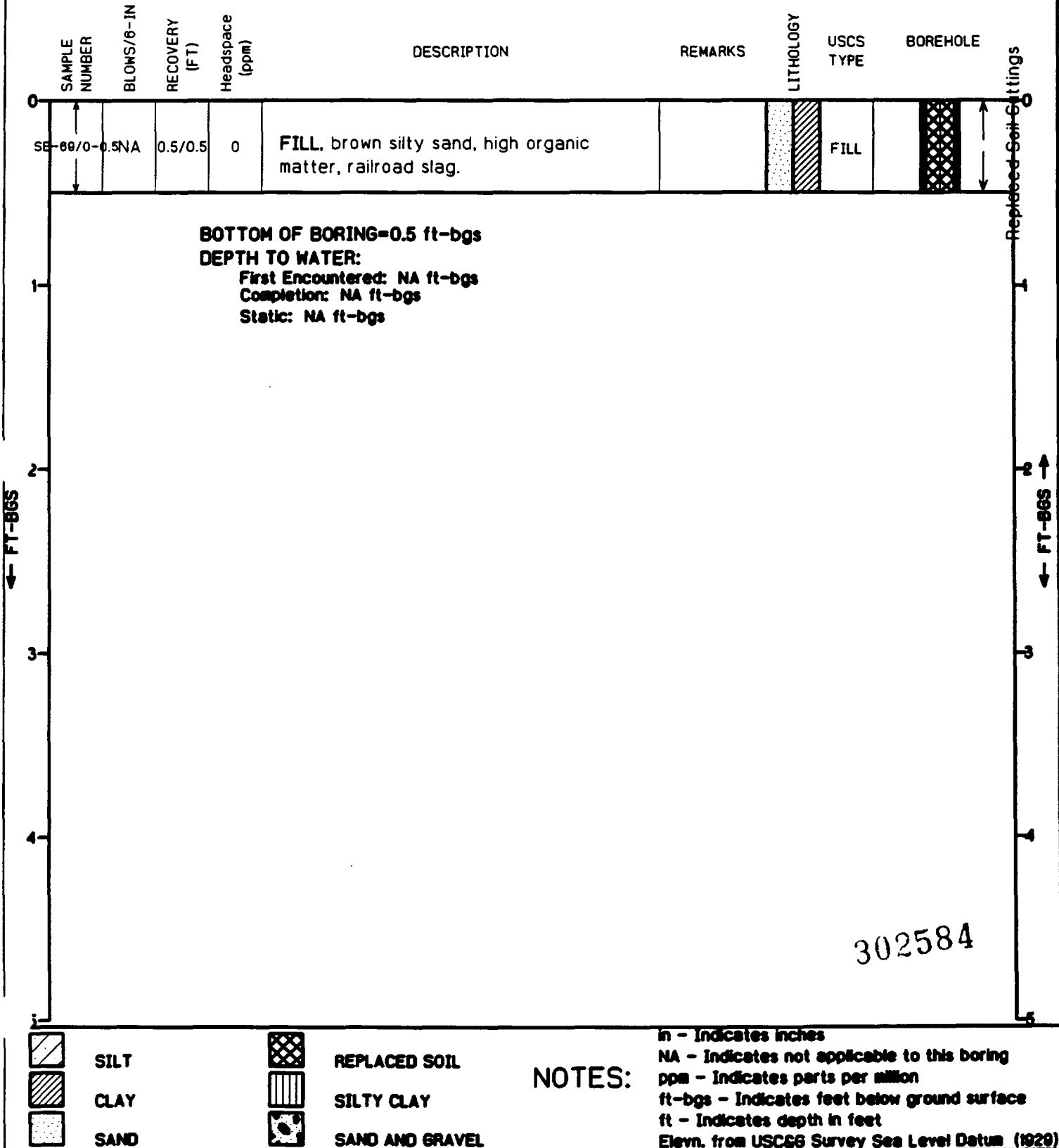
NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-69

Page 1 of 1

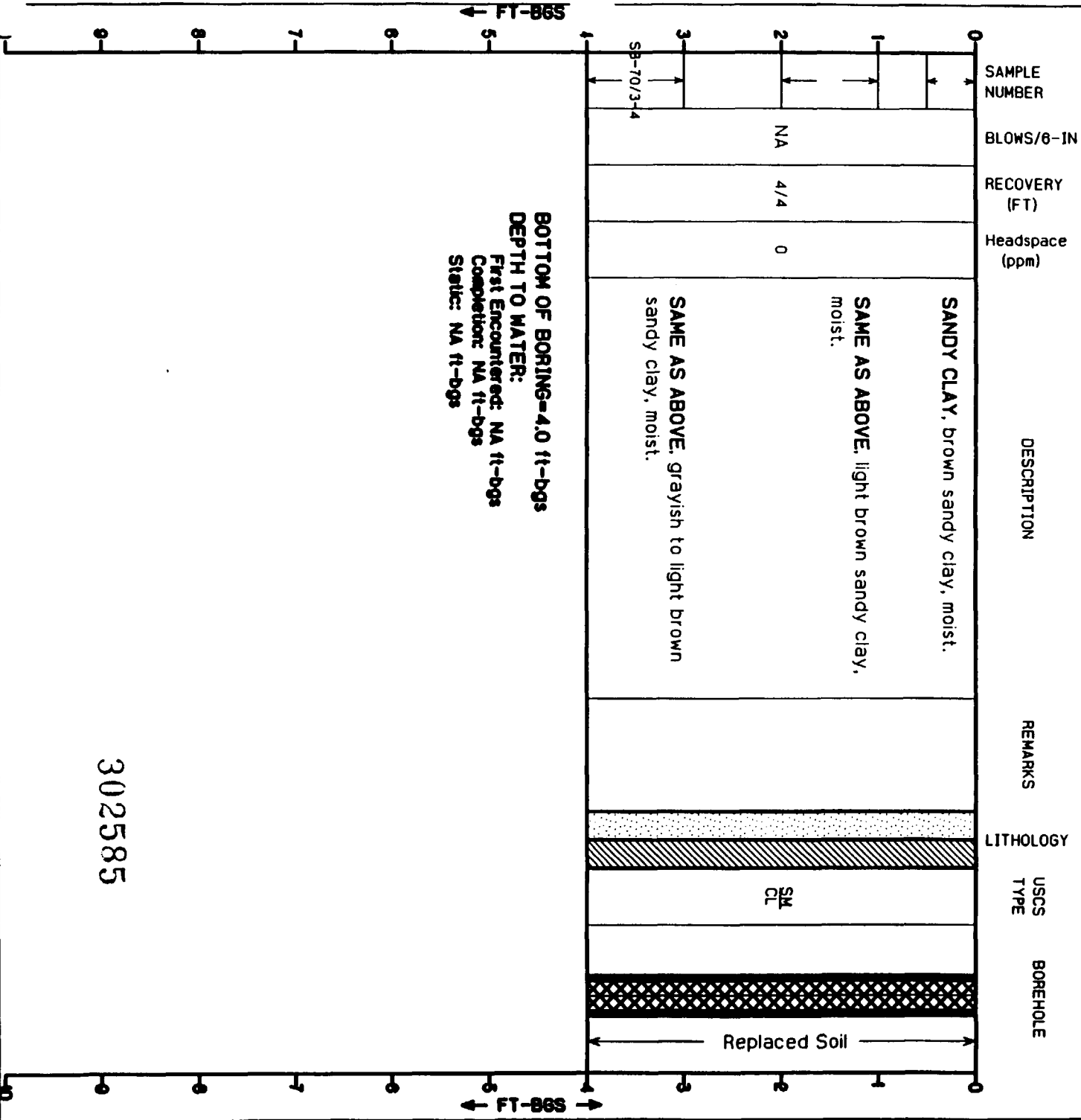
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 0.5
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl): 57.60
PROJECT NO.: 09.0801460.002	DRILLING CO.: N/A	DRILLERS: JAB
DATE STARTED: 12/14/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/14/94	DRILLING BIT: N/A	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411938.8240 / E 359988.3117	



LOG OF BORING: SB-70

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 82.80
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/19/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/19/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412965.0418 / E 358843.2933	



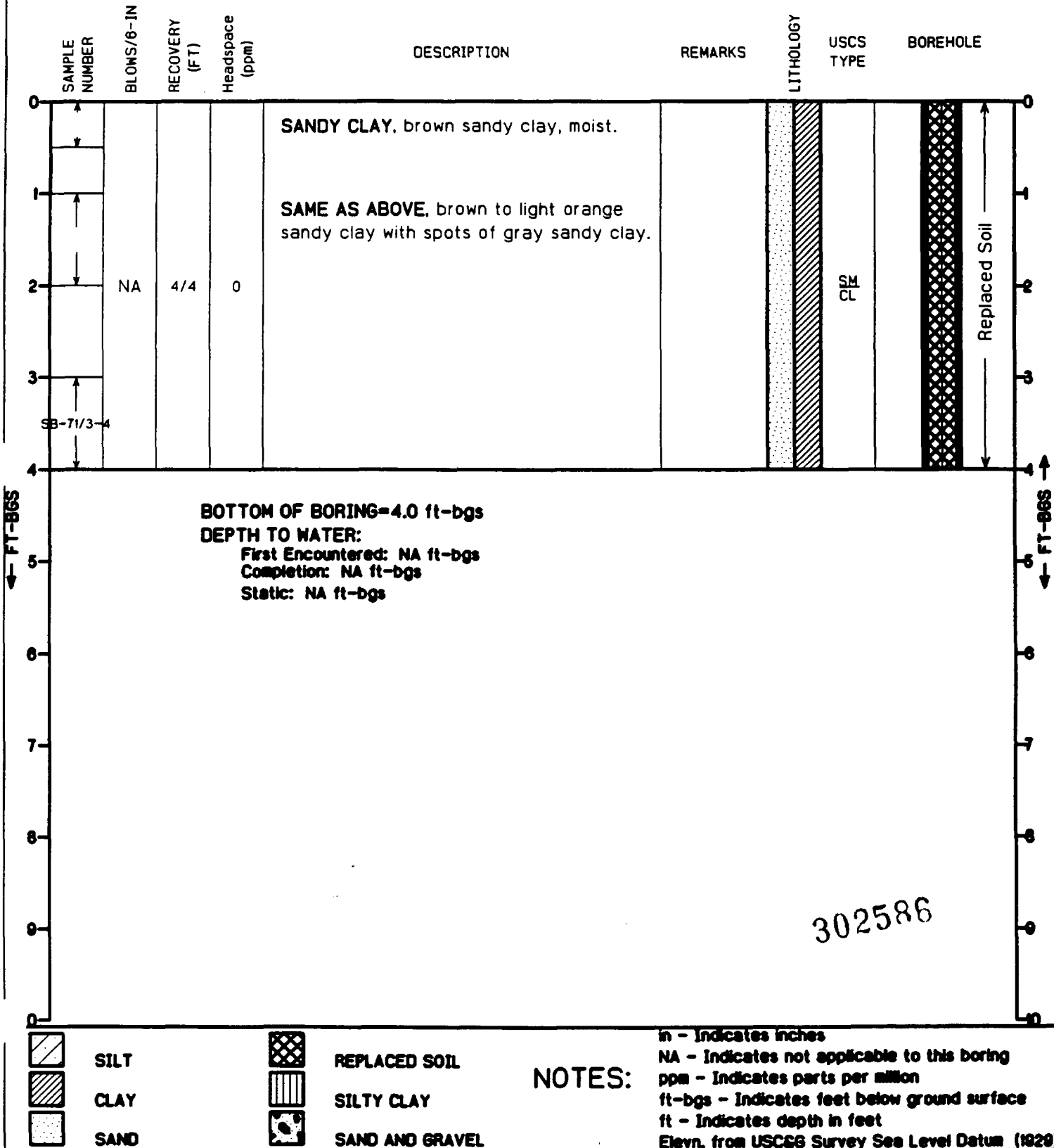
302585

	SILT		REPLACED SOIL	NOTES: ft - Indicates inches NA - Indicates not applicable to this boring ppm - Indicates parts per million ft-bgs - Indicates feet below ground surface ft - Indicates depth in feet Elevn. from USCGS Survey Sea Level Datum (1929)
	CLAY		SILTY CLAY	
	SAND		SAND AND GRAVEL	

LOG OF BORING: SB-71

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 64.70
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/19/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/19/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413045.5284 / E 358918.6766	



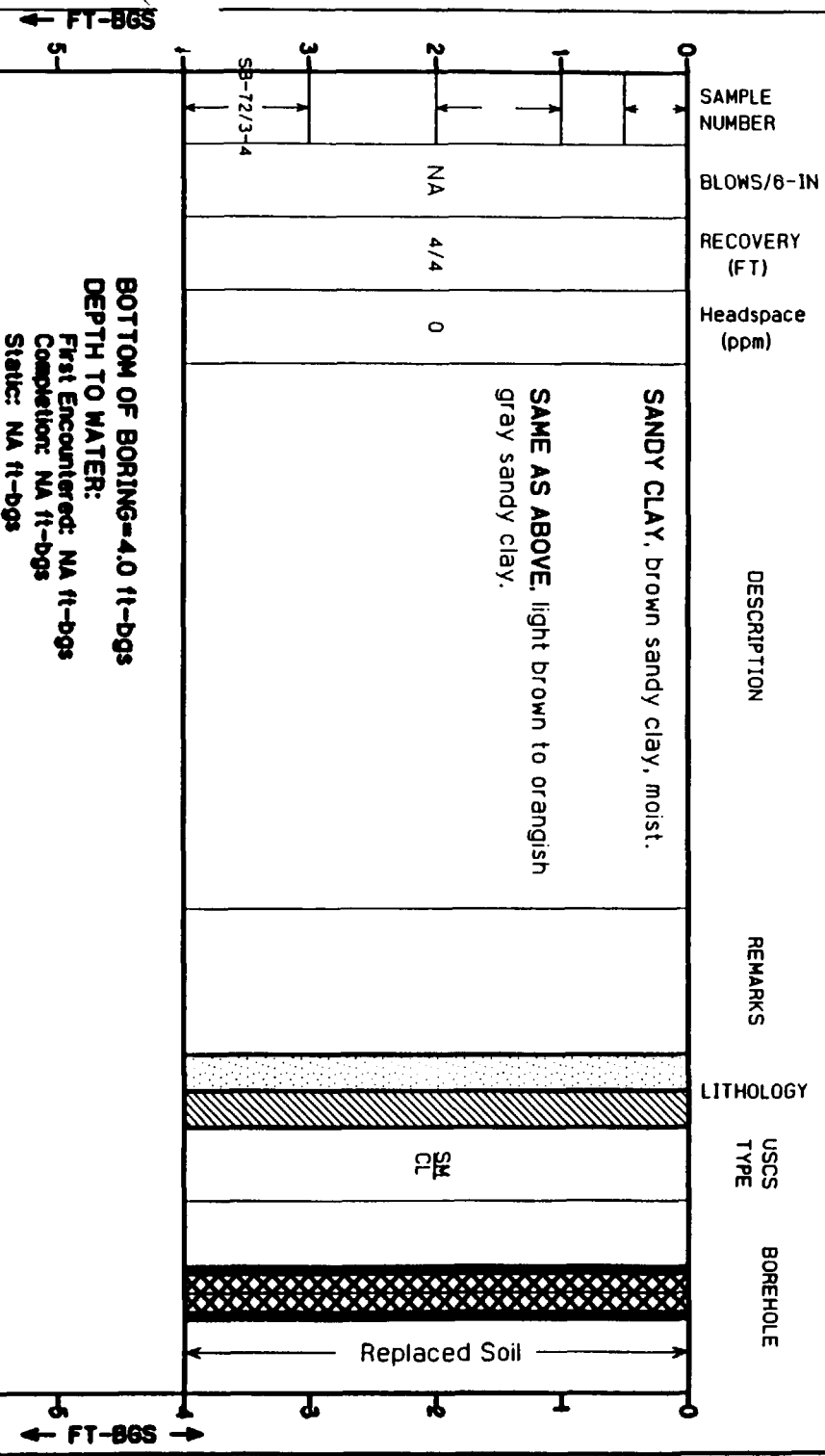
LOG OF BORING: SB-72

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801480.002
DATE STARTED: 12/18/94
DATE COMPLETED: 12/19/94

DILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 2-inch
DILLING BIT: Drive Point
NORTHING/EASTING: N 413119.8174 / E 358992.8158

TOTAL BORING DEPTH (ft): 4.0
GROUND SURF. ELEV. (ft-msl): 65.40
DILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

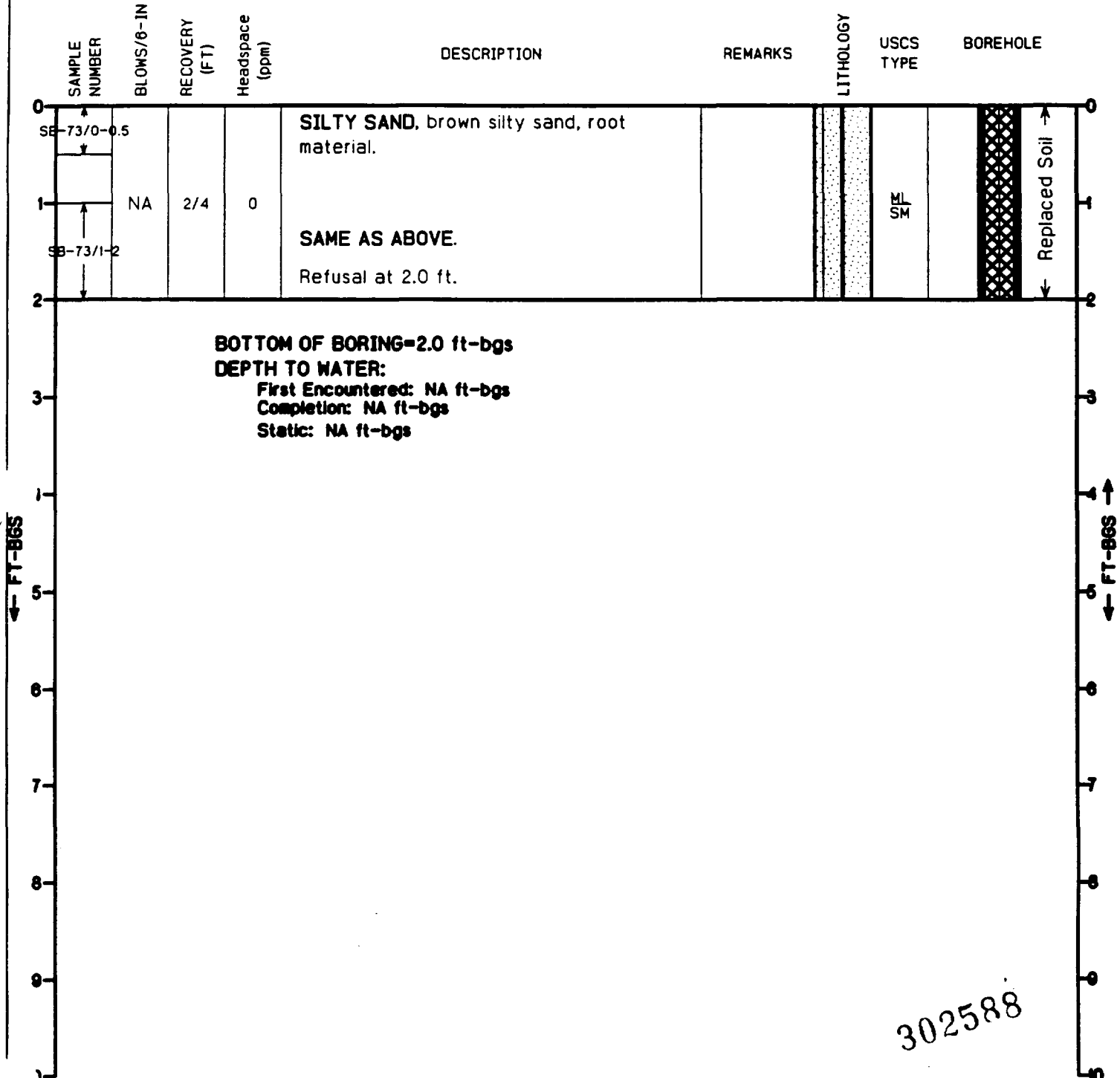
NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGG Survey See Level Datum (1929)

LOG OF BORING: SB-73

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 2.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 69.50
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/16/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/16/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412421.7620 / E 359164.4752	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

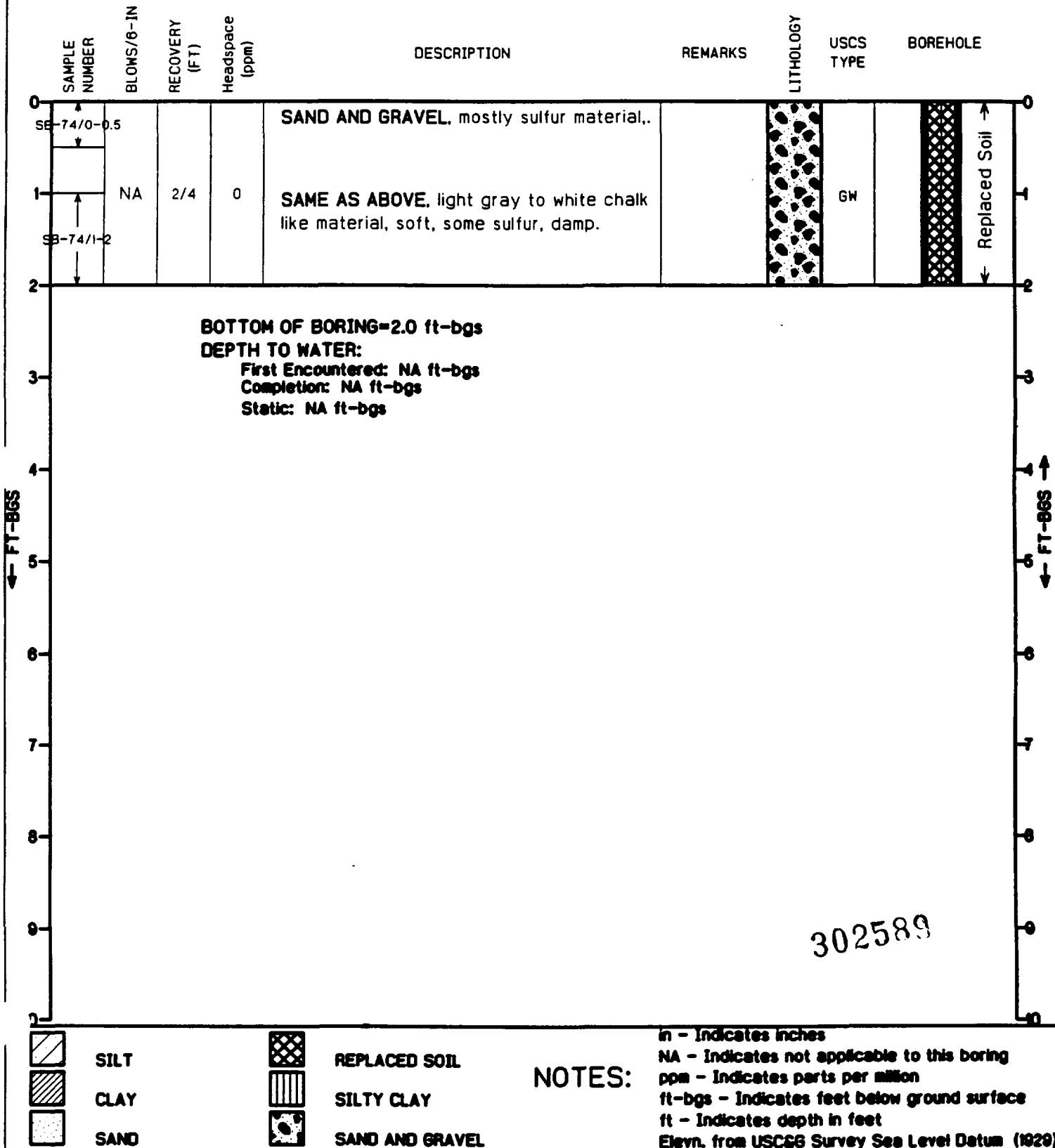
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-74

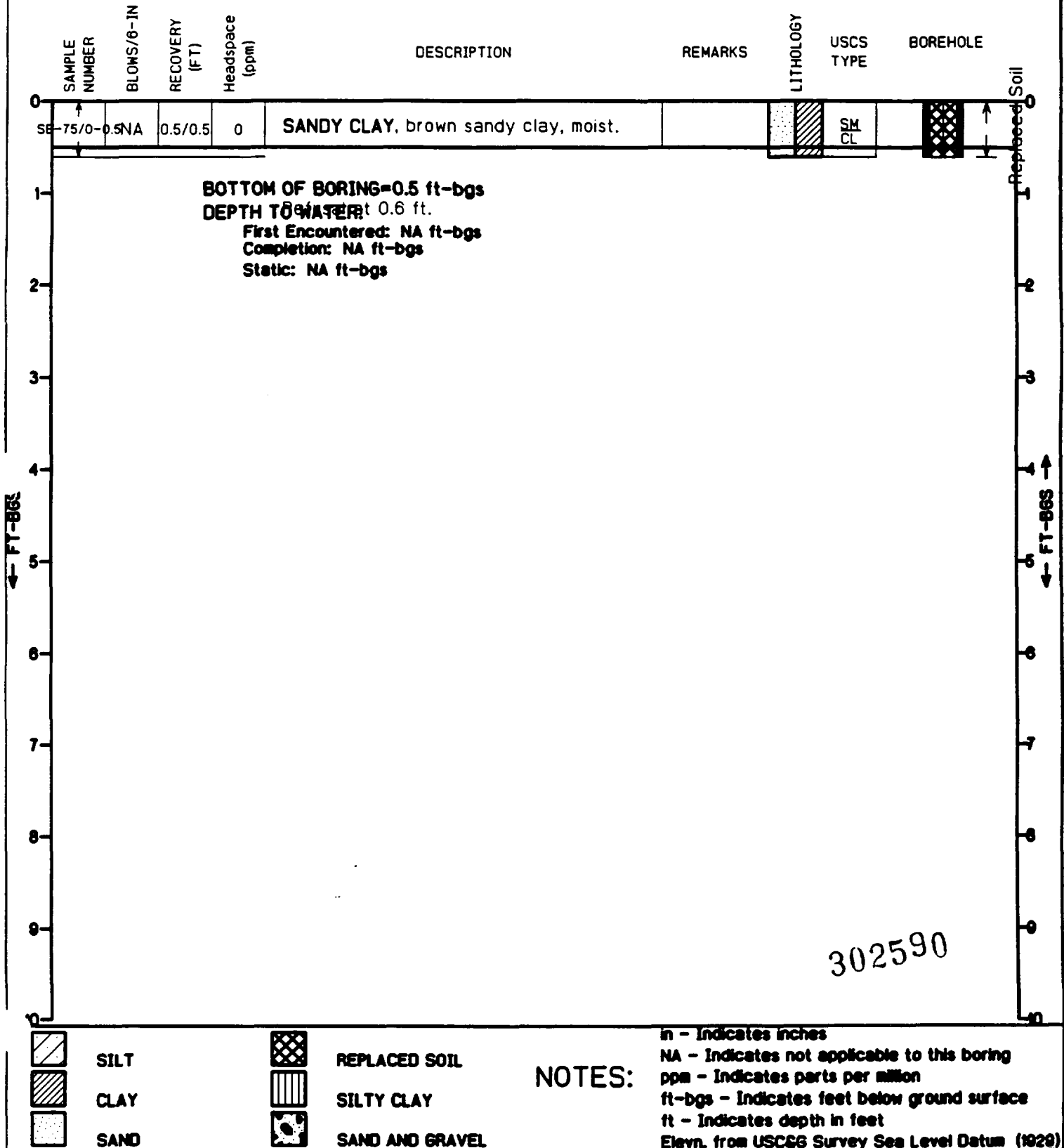
Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 2.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 68.30
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/16/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 12/16/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412552.7845 / E 359236.3822	



Page 1 of 1

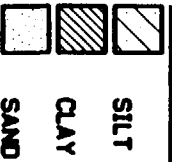
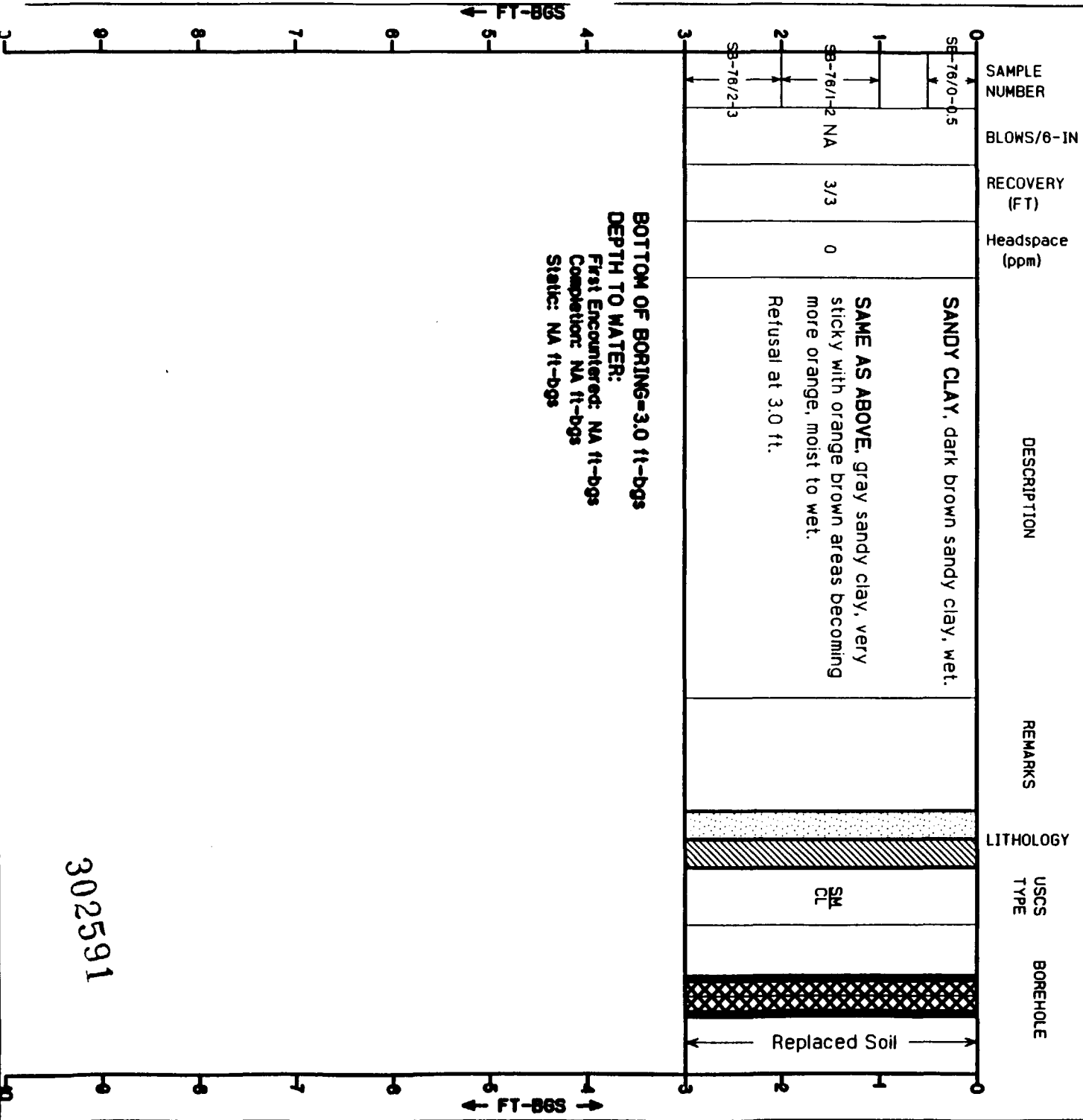
TOTAL BORING DEPTH (ft): 0.5
GROUND SURF. ELEV. (ft-msl): 55.20
DRILLERS: Tom
GEOLOGIST: JAB
CONSULTANT: McLaren/Hart



LOG OF BORING: SB-76

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801460.002 DATE STARTED: 12/19/94 DATE COMPLETED: 12/19/94	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/WEEL DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 411907.8607 / E 359907.0598	TOTAL BORING DEPTH (ft): 3.0 GROUND SURF. ELEV. (ft-msl): 55.30 DRILLERS: Tom GEOLOGIST: JAB CONSULTANT: McLaren/Hart
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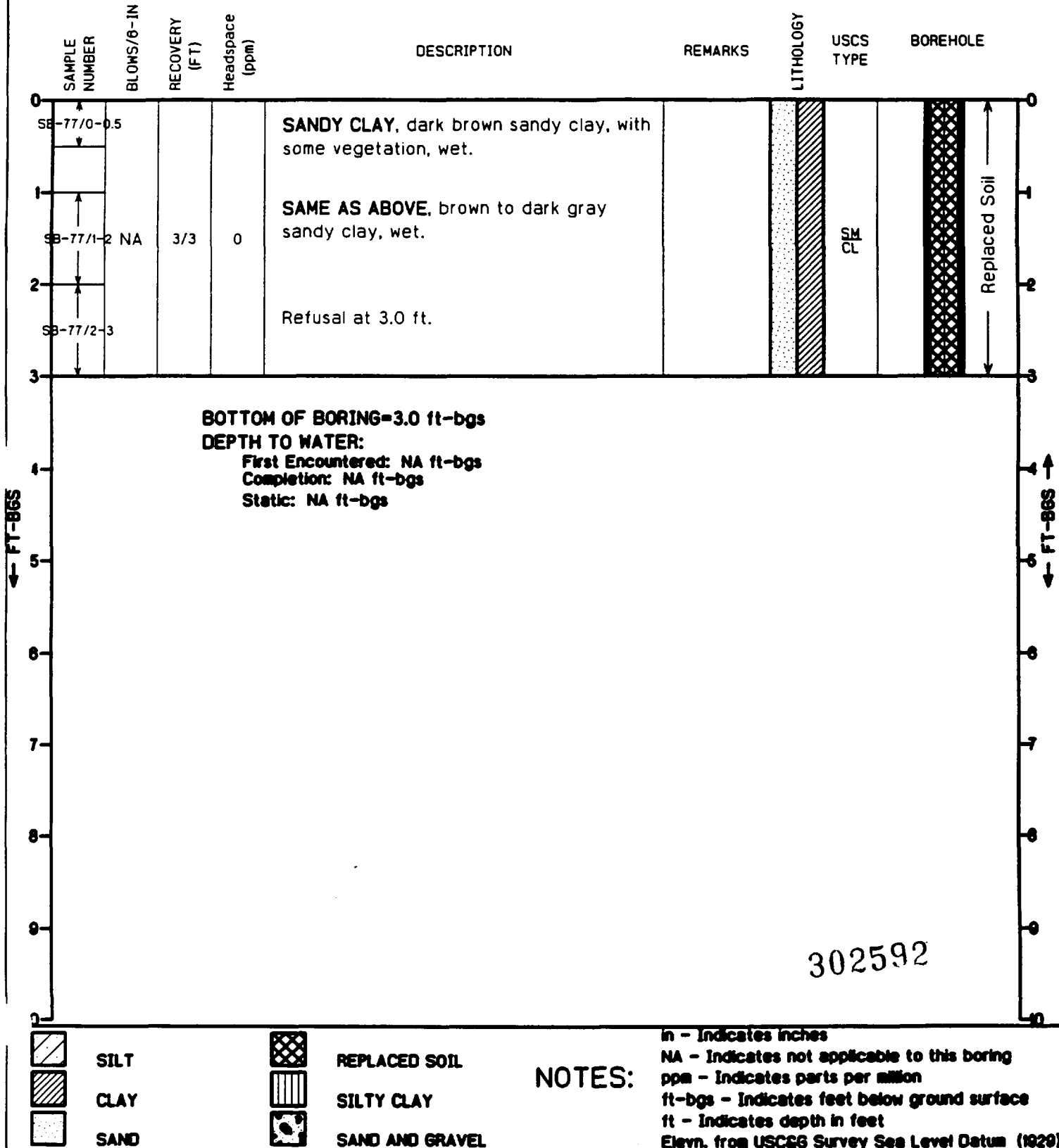
NOTES:

n - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-77

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 53.50
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 12/19/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/19/94	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411853.4018 / E 359916.6712	



LOG OF BORING: SB-78

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 08.0801460.002 DATE STARTED: 12/18/94 DATE COMPLETED: 12/19/94	DRILLING METHOD: Van Mounted Geoprobe SAMPLING METHOD: Acetate Liner DRILLING CO.: NCP Analytical BOREHOLE/WELL DIAMETER: 2-inch DRILLING BIT: Drive Point NORTHING/EASTING: N 411848.2911 / E 359964.3712	TOTAL BORING DEPTH (ft): 2.0 GROUND SURF. ELEV. (ft-msl): 52.70 DRILLERS: Tom GEOLOGIST: JAB CONSULTANT: McLaren/Hart
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SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
SB-78/0-0.5								
SB-78/0-1.2	NA	2/2	0	SANDY CLAY, dark brown sandy clay to dark gray sandy clay. SAME AS ABOVE, dark gray to dark brown turning light brown where boring is wet. Refusal at 2 ft.			SM CL	
								Replaced Soil
BOTTOM OF BORING=2.0 ft-bgs DEPTH TO WATER: First Encountered: NA ft-bgs Completion: NA ft-bgs Static: NA ft-bgs								
302593								



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

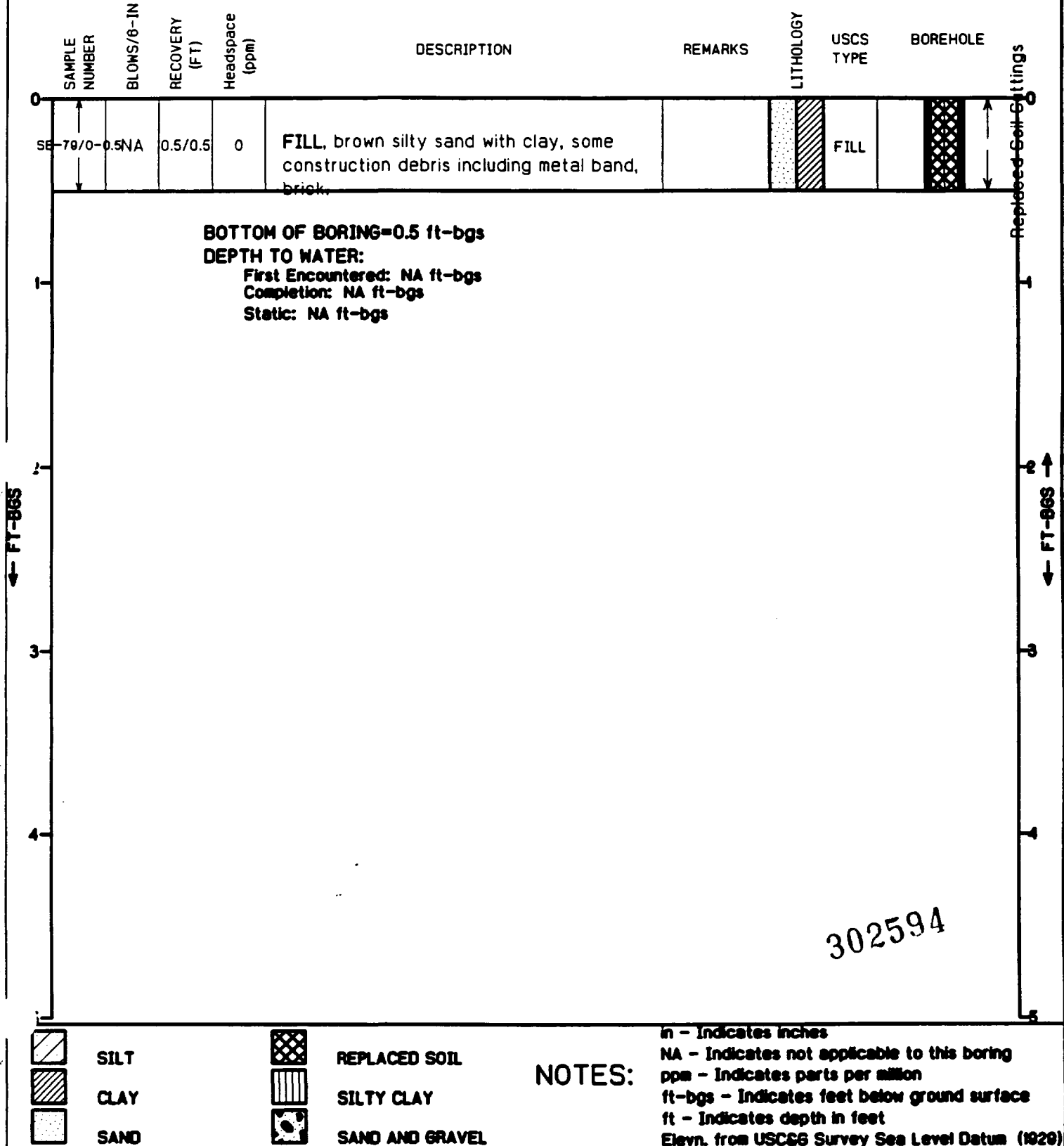
NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-79

Page 1 of 1

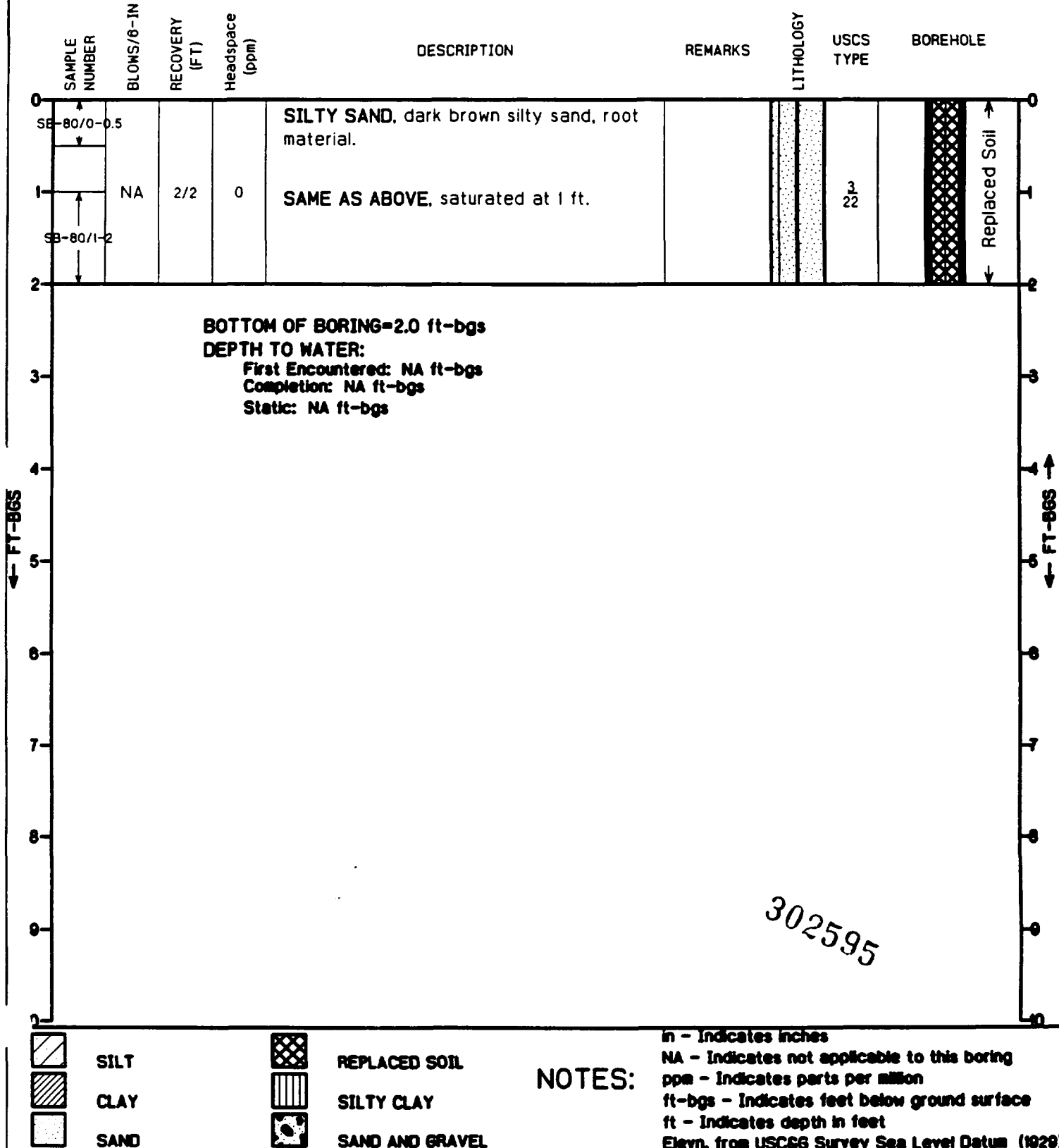
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 0.5
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl): 52.40
PROJECT NO.: 09.0801460.002	DRILLING CO.: N/A	DRILLERS: JAB
DATE STARTED: 12/16/94	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 12/16/94	DRILLING BIT: N/A	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 411786.4716 / E 359739.8672	



LOG OF BORING: SB-80

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 2.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 53.80
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 01/10/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coll
DATE COMPLETED: 01/10/95	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 413148.8819 / E 358409.360	



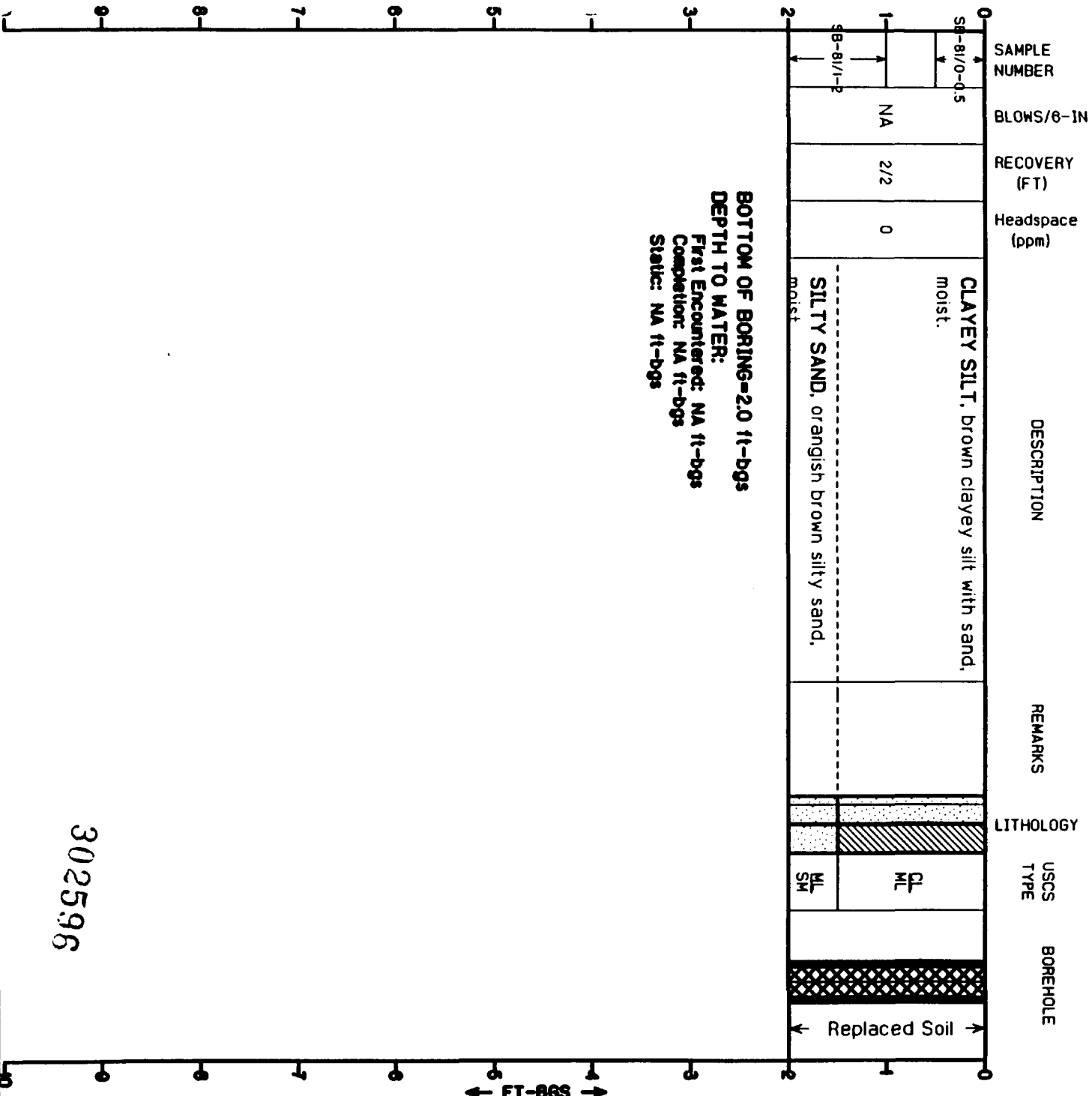
LOG OF BORING: SB-81

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801480.002
DATE STARTED: 01/10/95
DATE COMPLETED: 01/10/95

DILLING METHOD: Van Mounted Geoprobe
SAMPLING METHOD: Acetate Liner
DILLING CO.: NCP Analytical
BOREHOLE/WEEL DIAMETER: 2-inch
DILLING BIT: Drive Point
NORTHING/EASTING: N 413332.1921 / E 358585.9193

TOTAL BORING DEPTH (ft): 2.0
GROUND SURF. ELEV. (ft-msl): 57.10
DILLERS: Tom
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



SILT
 CLAY
 SAND

REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

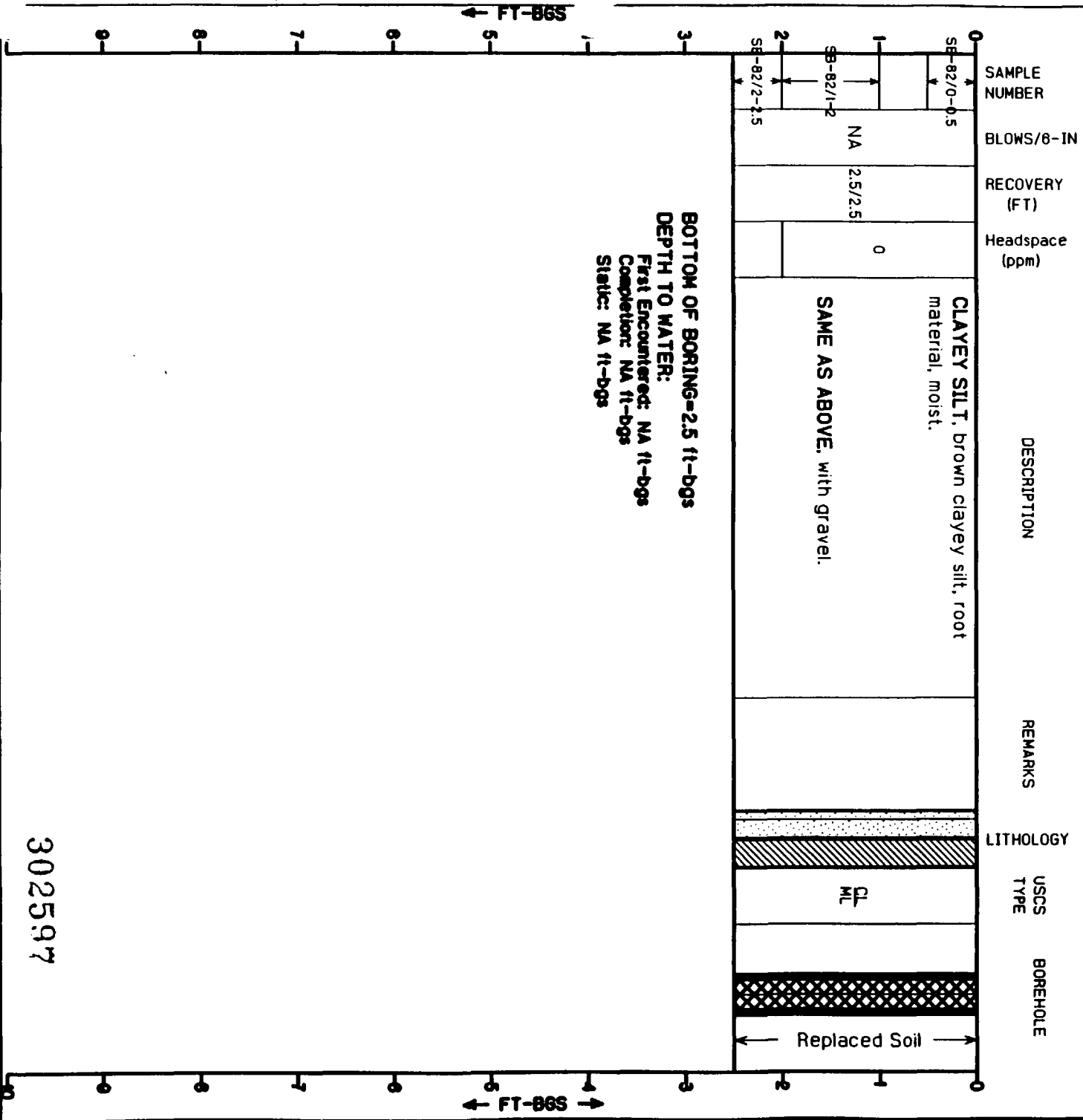
NOTES:







in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-82

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Van Mounted Geoprobe	TOTAL BORING DEPTH (ft): 2.5
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Acetate Liner	GROUND SURF. ELEV. (ft-msl): 60.30
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: Tom
DATE STARTED: 01/10/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: F. Coil
DATE COMPLETED: 01/10/95	DRILLING BIT: Drive Point	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N 412984.5013 / E 358810.1605	



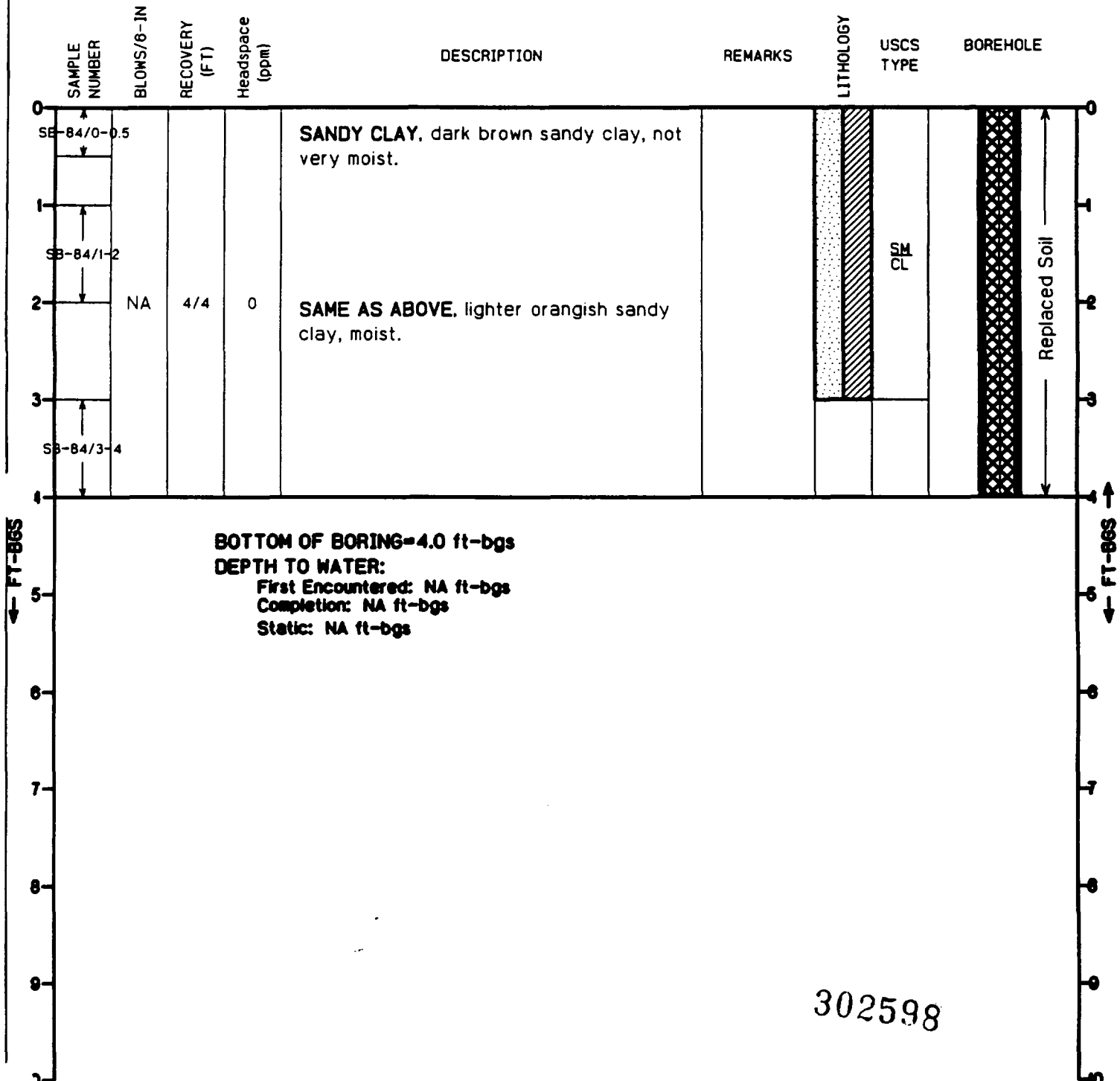
	SILT		REPLACED SOIL
	CLAY		SILTY CLAY
	SAND		SAND AND GRAVEL

NOTES:
 in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey See Level Datum (1929)

LOG OF BORING: SB-84

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

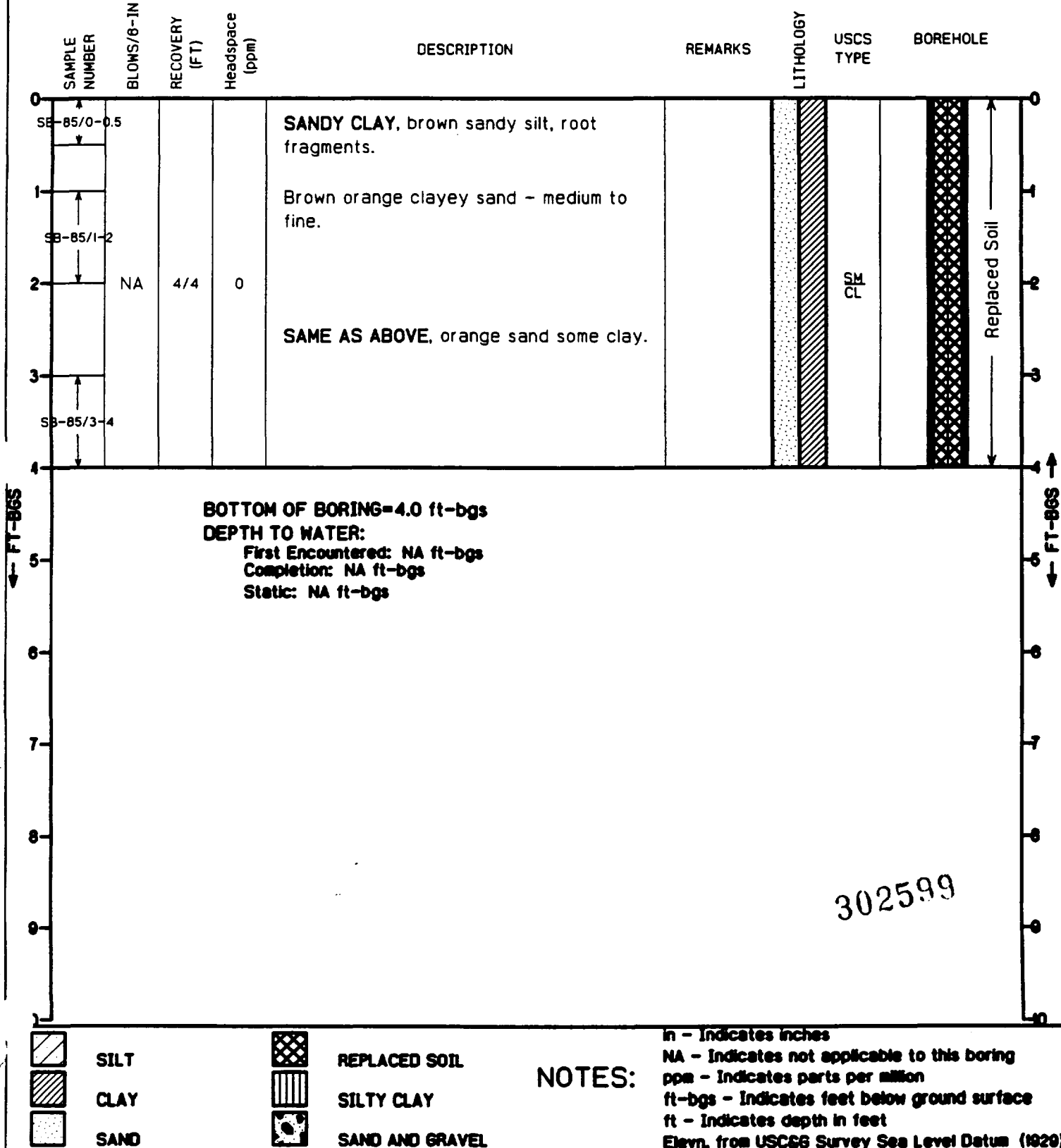
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-85

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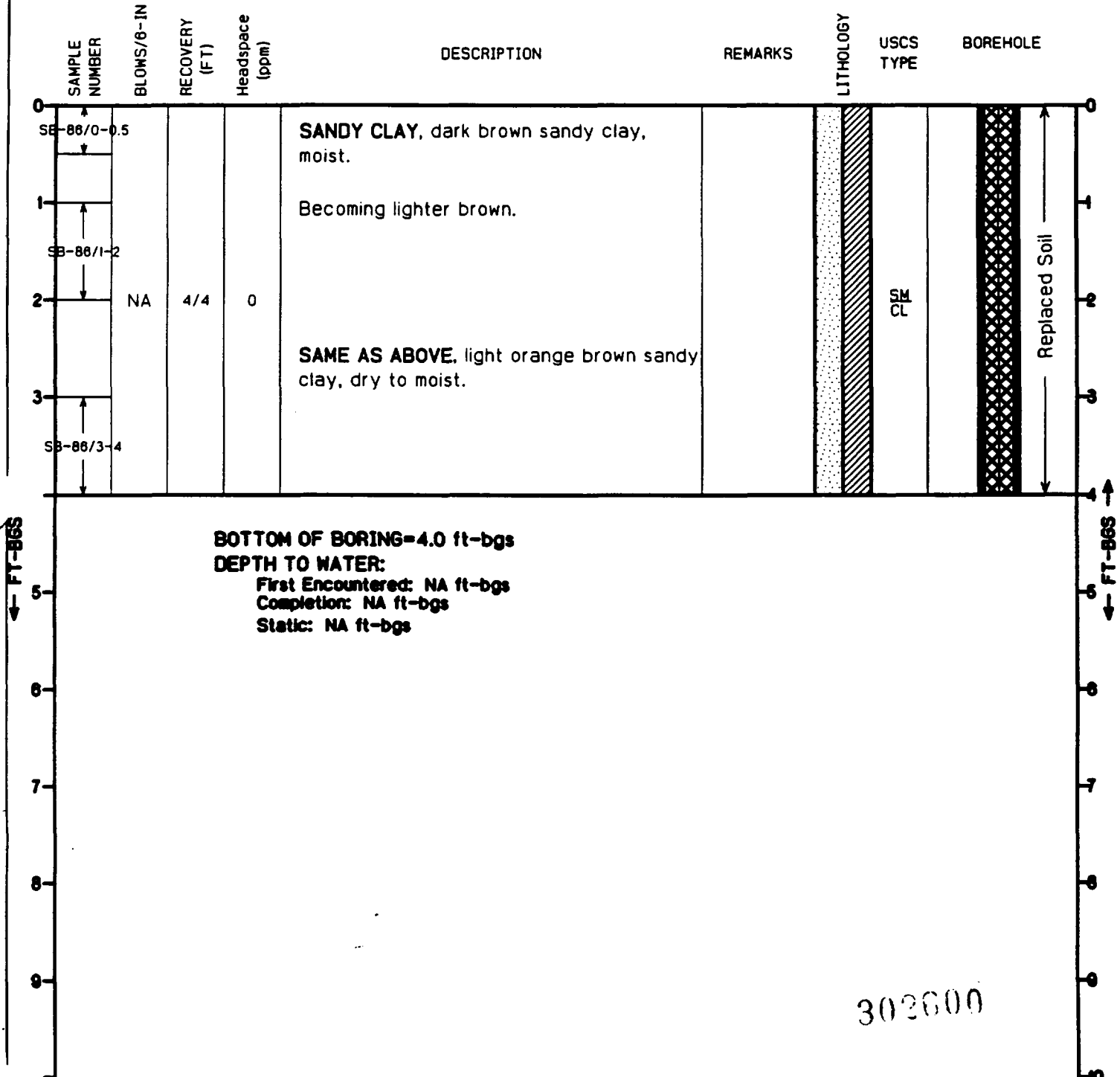
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



LOG OF BORING: SB-86

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

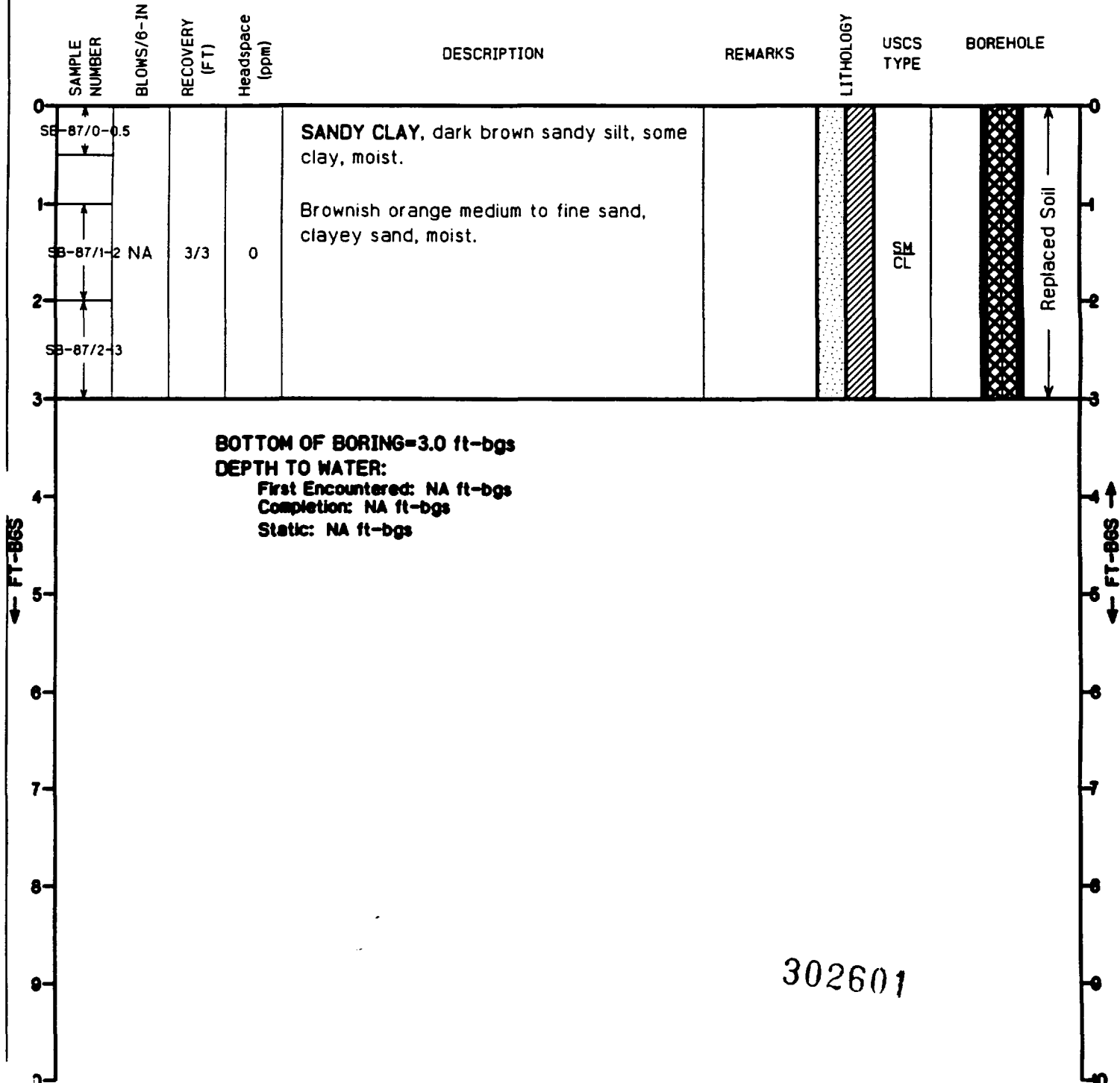
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-87

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

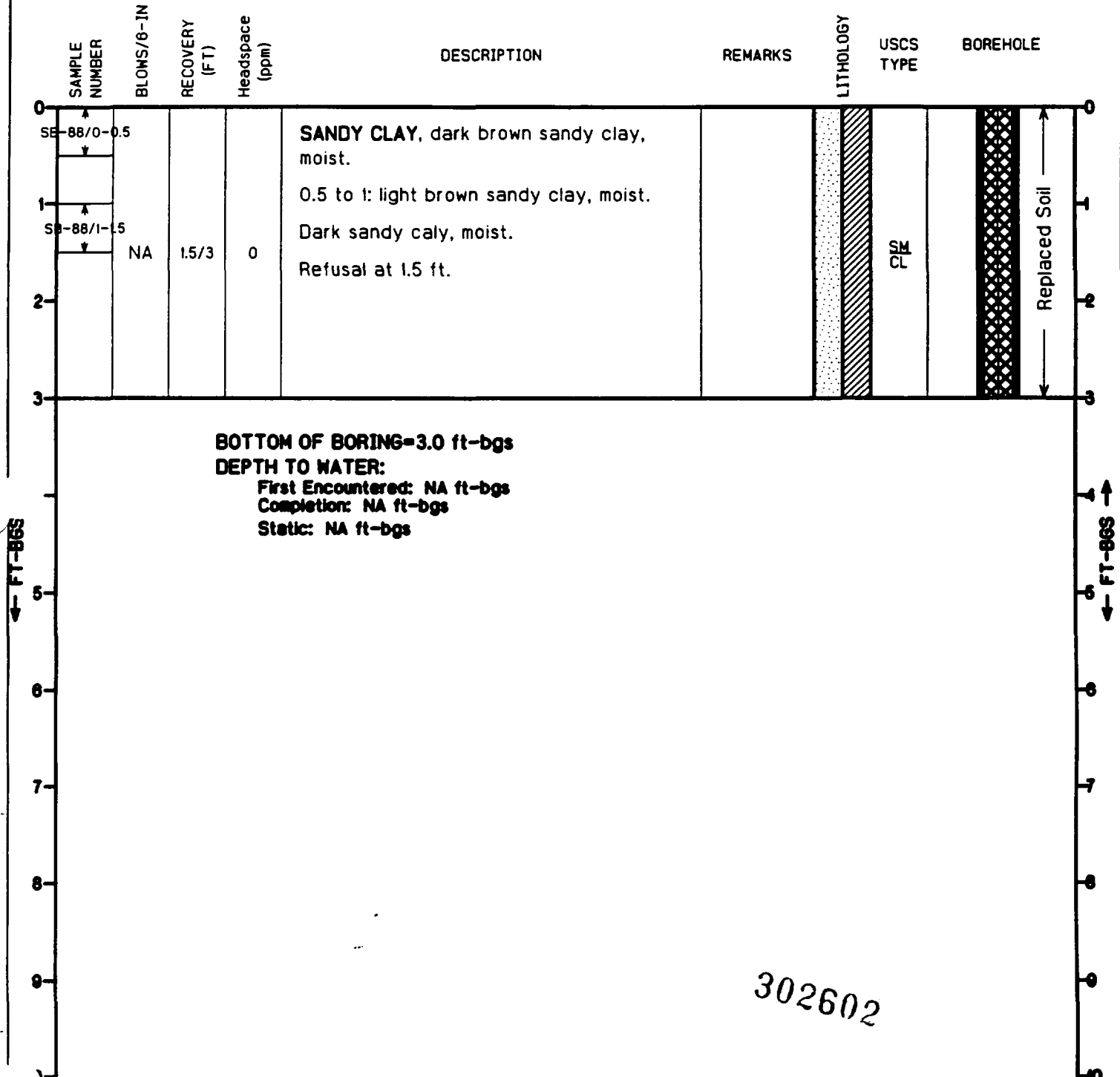
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCG Survey Sea Level Datum (1929)

LOG OF BORING: SB-88

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

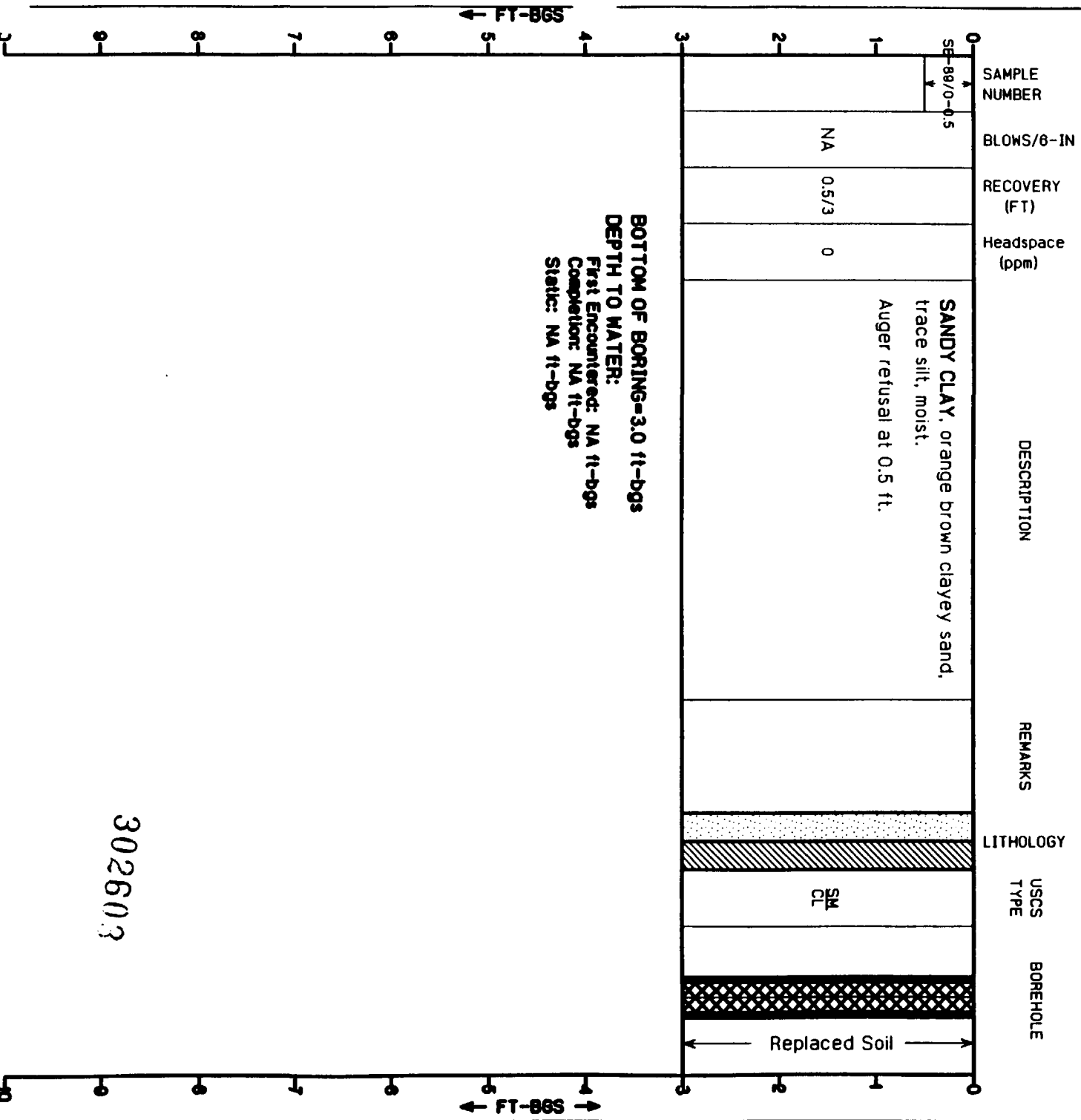
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGG Survey Sea Level Datum (1929)

LOG OF BORING: SB-89

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09/0801480.002 DATE STARTED: 03/19/95 DATE COMPLETED: 03/19/95	DRILLING METHOD: Hand Auger SAMPLING METHOD: Grab DRILLING CO.: NCP Analytical BOREHOLE/Well DIAMETER: 2-inch DRILLING BIT: NORTHING/EASTING: N / E	TOTAL BORING DEPTH (ft): 3.0 GROUND SURF. ELEV. (ft-msl): DRILLERS: N/A GEOLOGIST: JAB CONSULTANT: McLaren/Hart
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SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

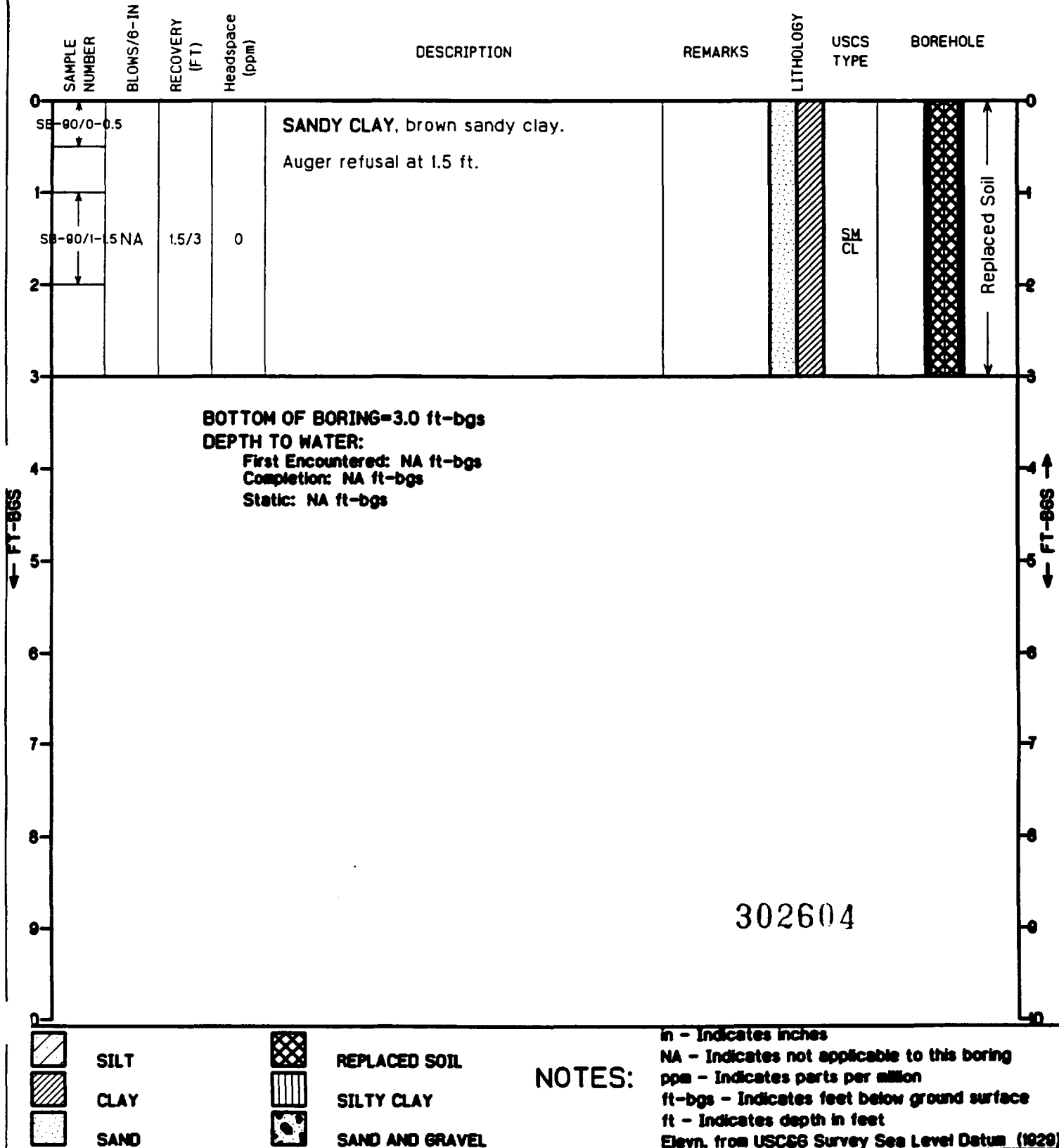
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-90

Page 1 of 1

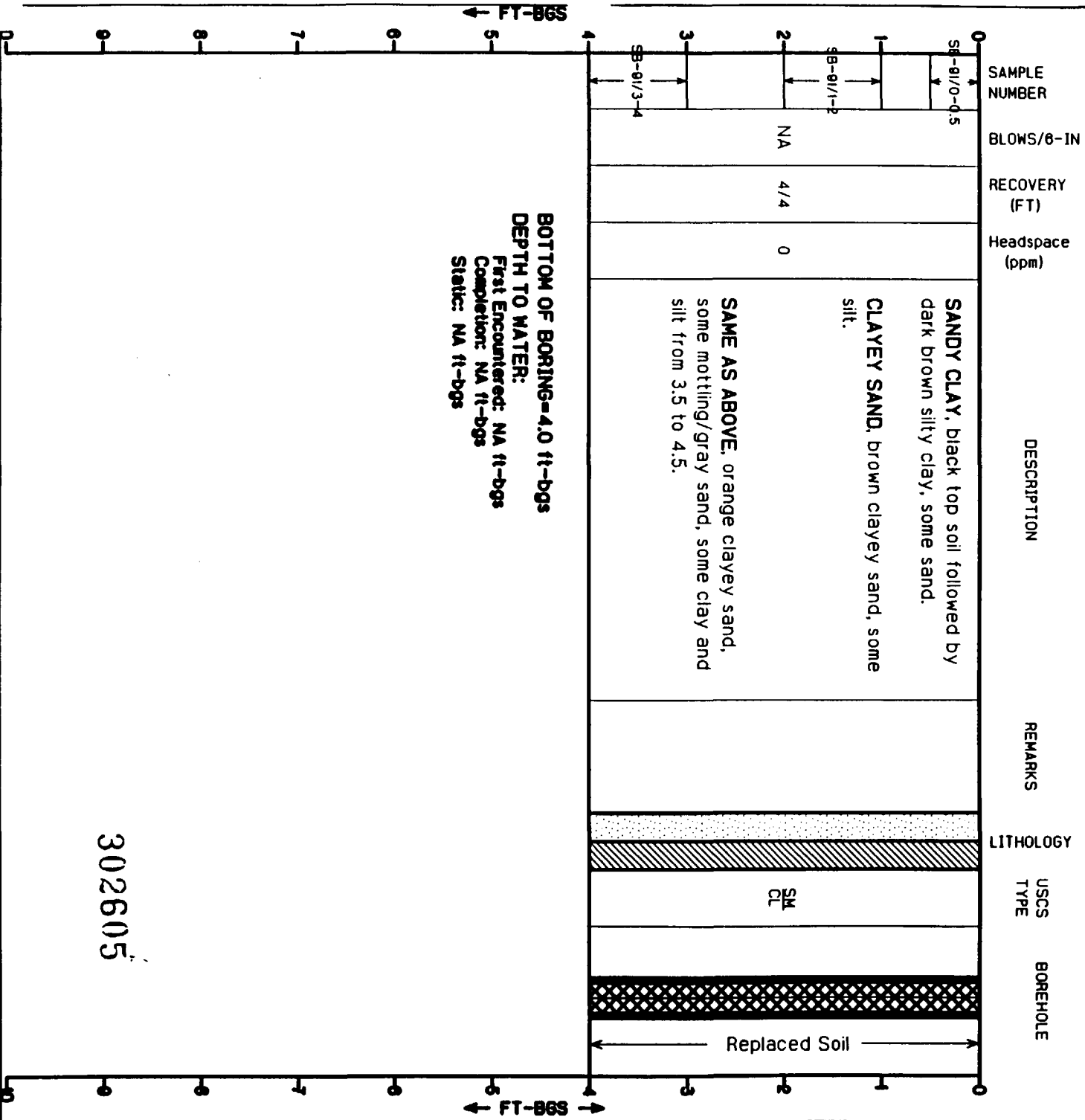
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 3.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



LOG OF BORING: SB-91

Page 1 of 1

CLIENT NAME: PPG Industries, Inc. LOCATION: Moorestown, New Jersey PROJECT NO.: 09.0801460.002 DATE STARTED: 03/19/95 DATE COMPLETED: 03/19/95	DRILLING METHOD: Hand Auger SAMPLING METHOD: Grab DRILLING CO.: NCP Analytical BOREHOLE/Well DIAMETER: 2-inch DRILLING BIT: NORTHING/EASTING: N / E	TOTAL BORING DEPTH (ft): 4.0 GROUND SURF. ELEV. (ft-msl): DRILLERS: N/A GEOLOGIST: JAB CONSULTANT: McLaren/Hart
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SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

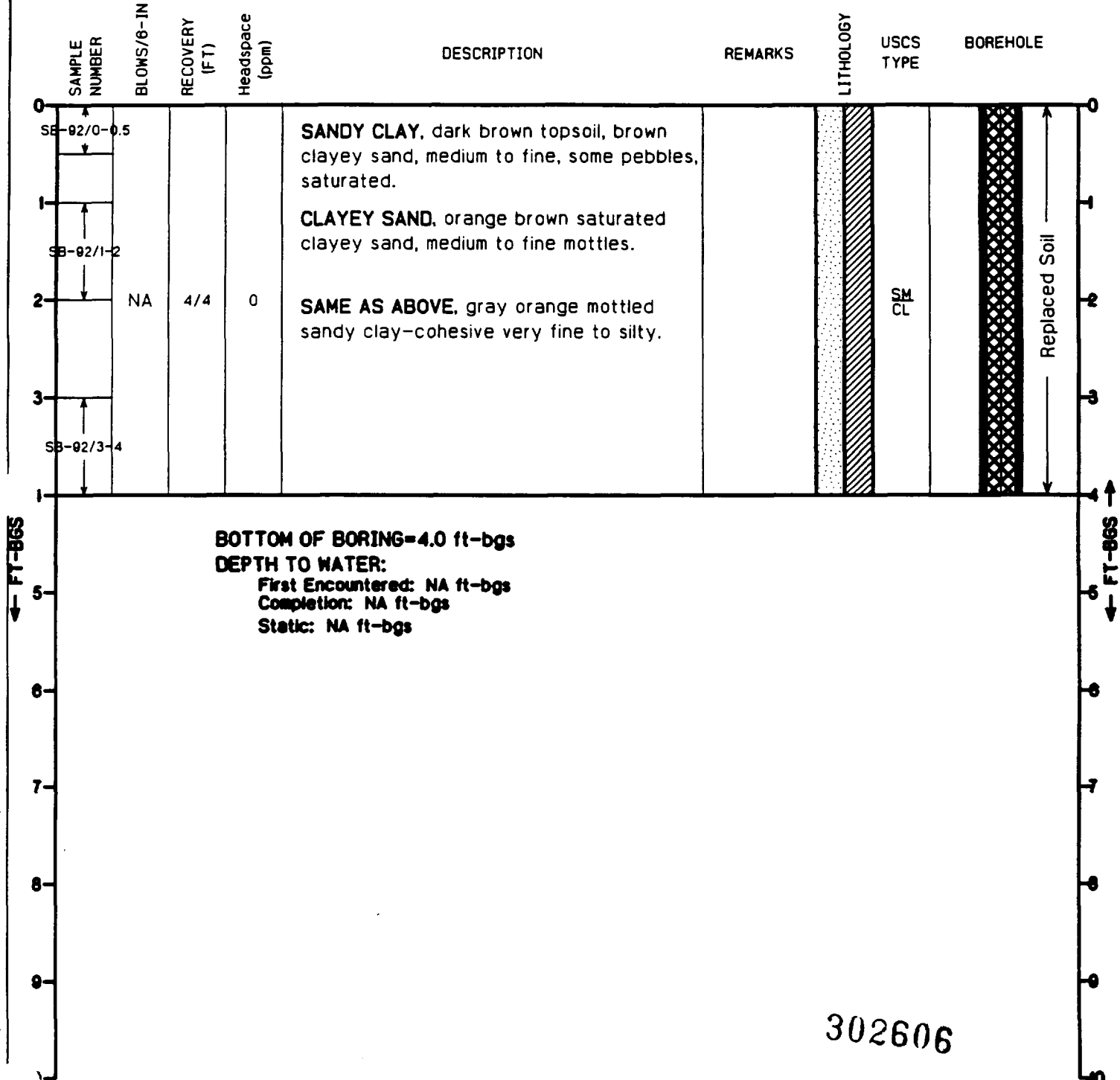
NOTES:

in - Indicates inches
 NA - Indicates not applicable to the boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey See Level Datum (1929)

LOG OF BORING: SB-92

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



SILT
CLAY
SAND



REPLACED SOIL
SILTY CLAY
SAND AND GRAVEL

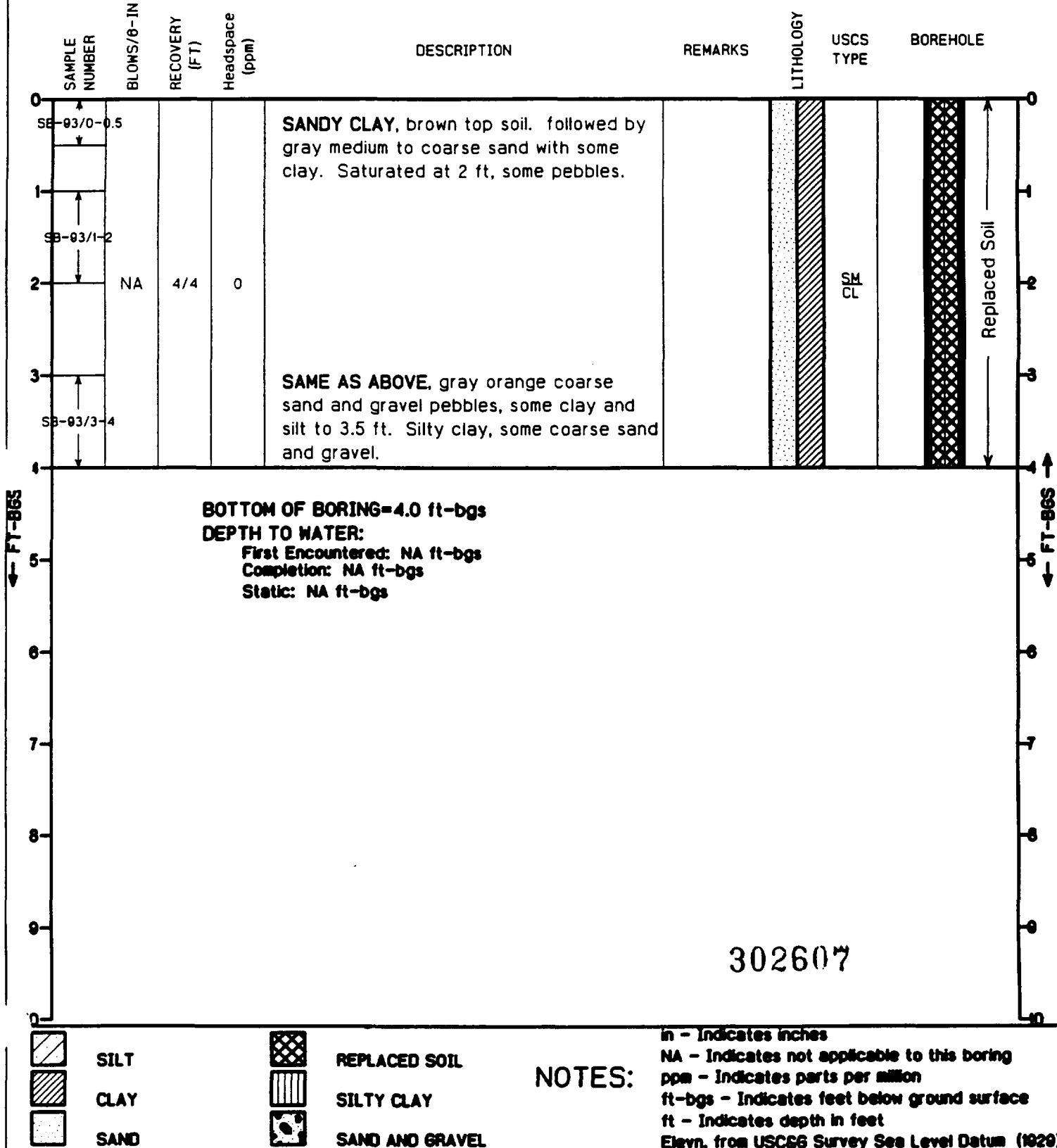
NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: SB-93

Page 1 of 1

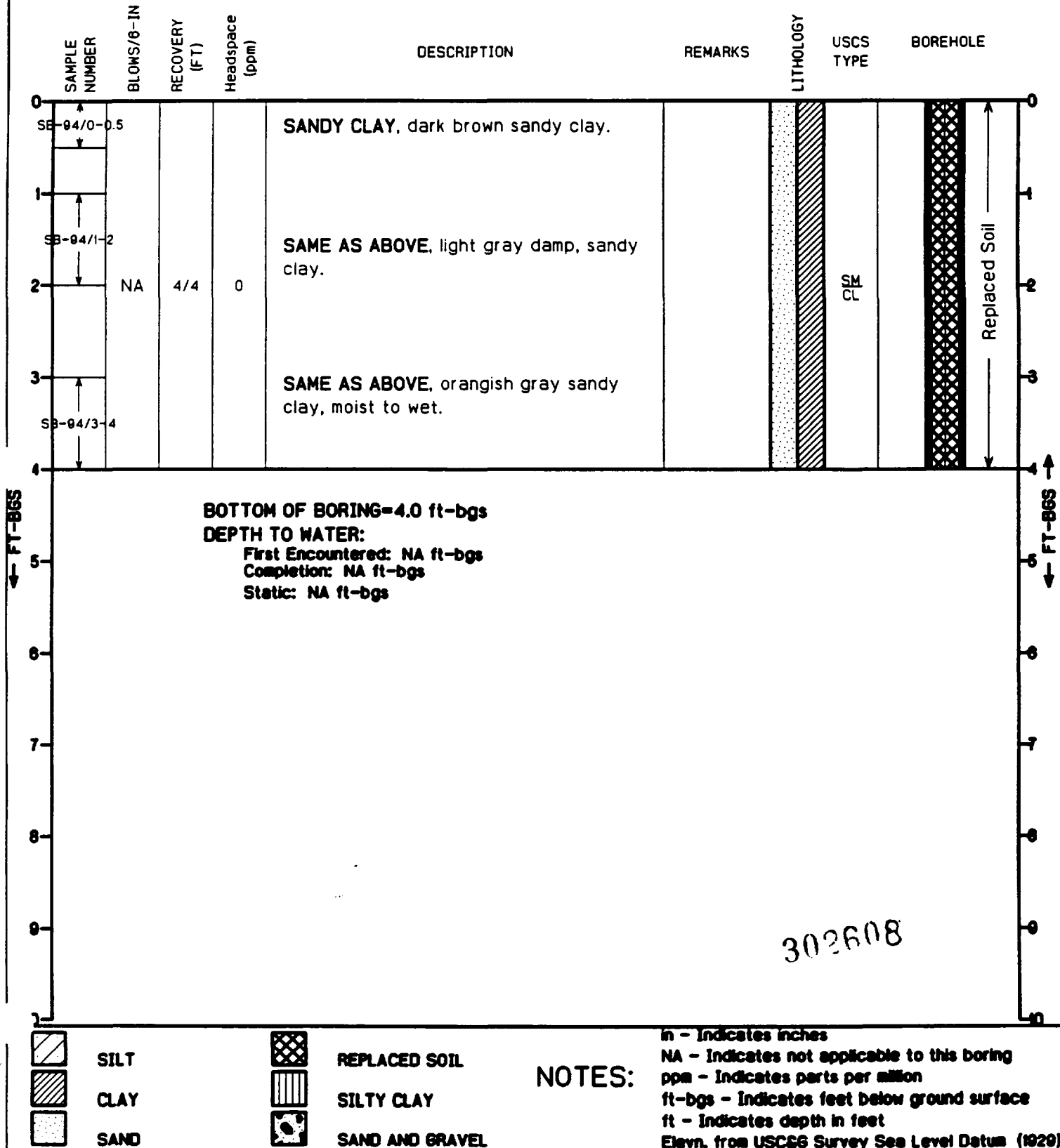
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



LOG OF BORING: SB-94

Page 1 of 1

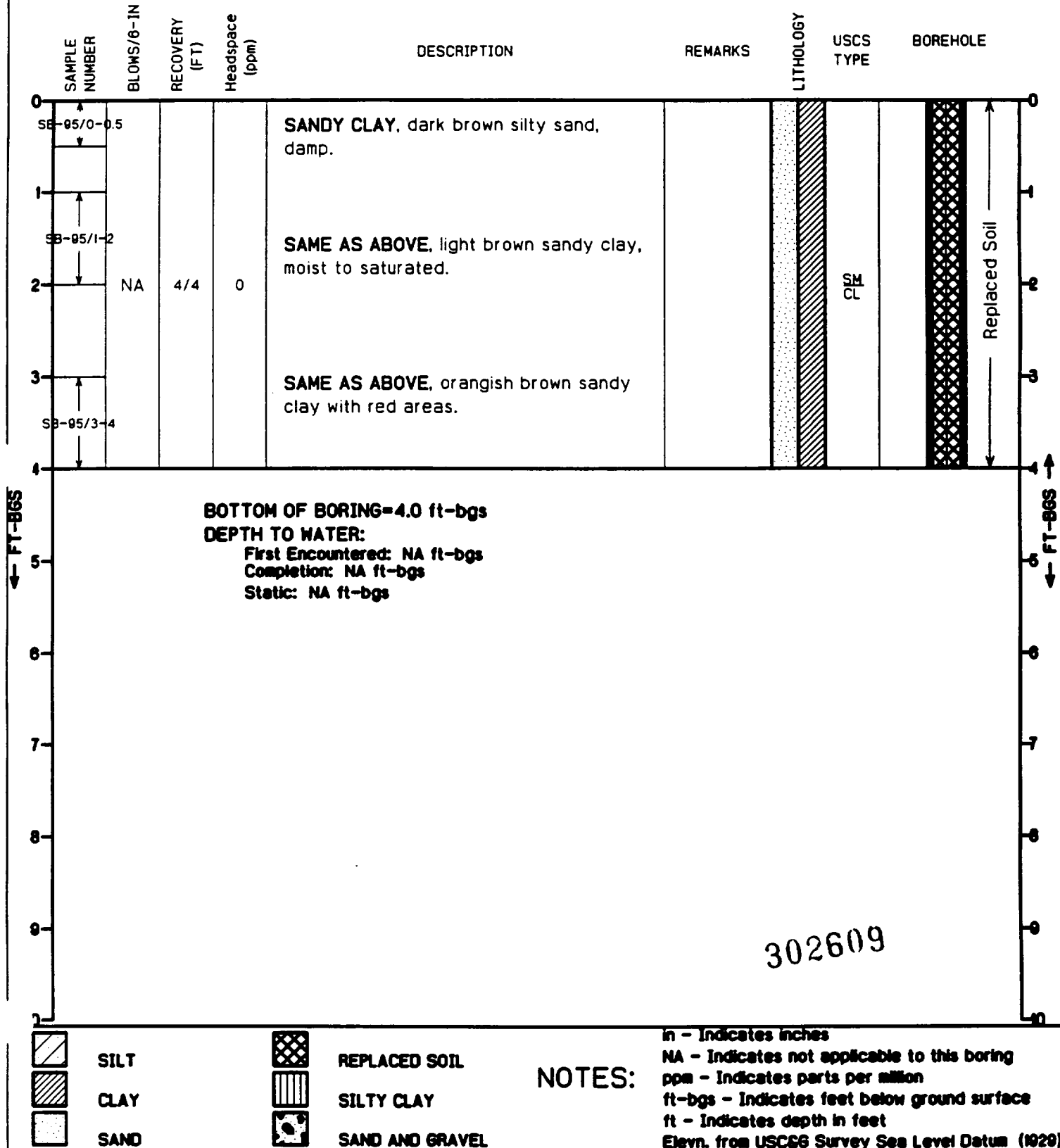
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



LOG OF BORING: SB-95

Page 1 of 1

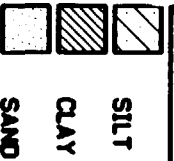
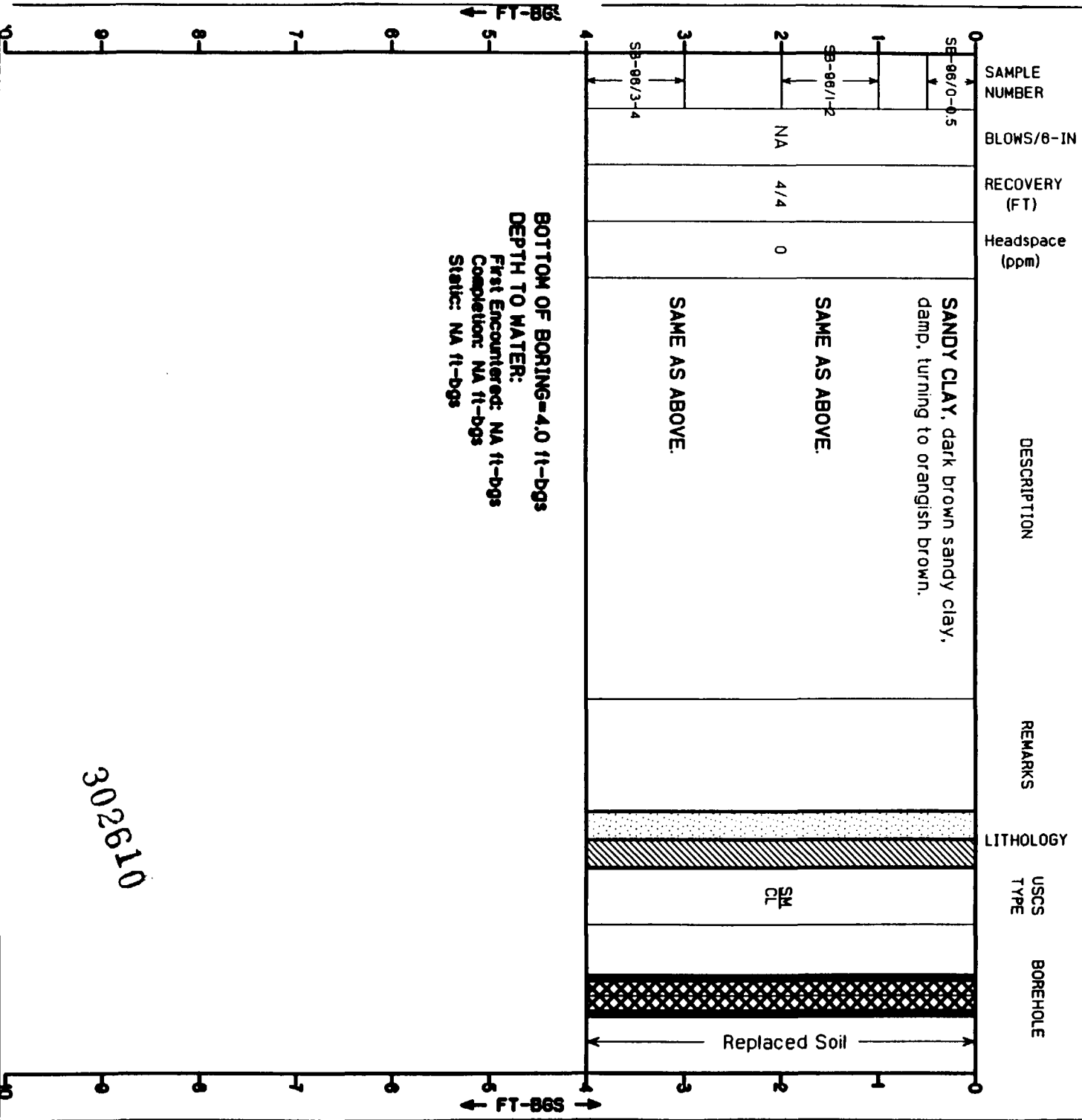
CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801460.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



LOG OF BORING: SB-96

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hand Auger	TOTAL BORING DEPTH (ft): 4.0
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Grab	GROUND SURF. ELEV. (ft-msl):
PROJECT NO.: 09.0801480.002	DRILLING CO.: NCP Analytical	DRILLERS: N/A
DATE STARTED: 03/19/95	BOREHOLE/WELL DIAMETER: 2-inch	GEOLOGIST: JAB
DATE COMPLETED: 03/19/95	DRILLING BIT:	CONSULTANT: McLaren/Hart
	NORTHING/EASTING: N / E	



REPLACED SOIL
 SILTY CLAY
 SAND AND GRAVEL

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

LOG OF BORING: PZ-01

Page 1 of 3

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 12/18/94
DATE COMPLETED: 12/18/94

DILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 413031.7843 / E 358345.4788

TOTAL BORING DEPTH (ft): 27
GROUND SURF. ELEV. (ft-msl): 53.30
TOP OF CASING ELEV. (ft-msl): 56.80
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
1				SILTY SAND, brown silty sand, moist, root material.			SM	
2		4/4	NA	SILTY CLAY, yellowish brown, silty clay/clayey silt with 5 % sand and gravel.				
3								
4				SILTY CLAY, medium gray silty clay with orangish brown mottling, dry.				
5		4/4	NA					
6								
7								
8								
9								
10		4/4	NA					
11								
12				SAME AS ABOVE				
13								
14		4/4	NA	CLAY, dark gray clay, stiff, dry.				



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCGS Survey Sea Level Datum (1983)

302611

LOG OF BORING: PZ-01

CLIENT NAME: PPG Industries, Inc.

PROJECT NO.: 09.0801460.005

PAGE 2 of 3

GEOLOGIST: F. Coll

CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/8-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
15				SAME AS ABOVE, dark gray clay, stiff dry and sticky.				
16		4/4	NA					
17				SAME AS ABOVE				
18								
19		3/3	NA					
20				SAME AS ABOVE, becoming wet and sticky at 21 ft.				
21		2/2	NA					
22								
23				SAME AS ABOVE, saturated pockets.				
24								
25								

FT-BGS ↑
↓

CFE

1-1/4-in. Dia., 0.020-in. Screen



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elev. from USCG Survey Sea Level Datum (ft)

302612

LOG OF BORING: PZ-01

CLIENT NAME: PPG Industries, Inc.
PROJECT NO.: 09.0801460.005

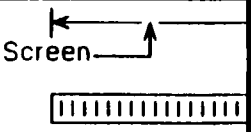
PAGE 3 of 3

GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
25								
26		2/2	NA	Saturated at 25.5 ft.				
27								
28								
29								
30								
31								
32								
33								
34								
35								

BOTTOM OF BORING=27 ft-bgs
DEPTH TO WATER:
First Encountered: 8.9 ft-bgs
Completion: NA ft-bgs
Static: 5.7 ft-bgs

1-1/4-in. Dia., 0.020-in.



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCS66 Survey See Level Datum (1)

302613

Page 1 of 1

TOTAL BORING DEPTH (ft): 9.5
GROUND SURF. ELEV. (ft-msl): 56.20
TOP OF CASING ELEV. (ft-msl): 56.91
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

NOTES:

in - Indicates inches

NA - Indicates not applicable to this boring

ppm - Indicates parts per million

ft-bgs - Indicates feet below ground surface

ft-toc - Indicates feet below top of casing

Elevn. from USCG6 Survey Sea Level Datum (1985)

302614

LOG OF BORING: PZ-03

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 12/19/94
DATE COMPLETED: 12/19/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/HELL DIAMETER: 1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 413374.9221 / E 358684.8897

TOTAL BORING DEPTH (ft): 11
GROUND SURF. ELEV. (ft-msl): 58.70
TOP OF CASING ELEV. (ft-msl): 59.45
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
		4/4	NA	SAND WITH SILT orange brown medium sand with silt.			SM	
		4/4	NA	SAND WITH GRAVEL, orange brown medium to coarse sand with gravel.			SG	
		3/3	NA	CLAY, dark gray medium stiff clay, sticky.			CL	
				SAME AS ABOVE, saturated.				
				SILTY SAND, brown silty sand with root material, moist.			ML SM	

1-1/4-in. Dia., 0.020-in. Screen

BOTTOM OF BORING=11 ft-bgs
DEPTH TO WATER:
First Encountered: 7.0 ft-bgs
Completion: NA ft-bgs
Static: 7.1 ft-bgs



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCGS Survey Sea Level Datum (1

302615




LOG OF BORING: PZ-04

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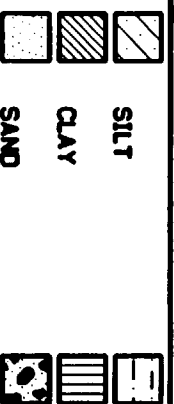
CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801480.005
DATE STARTED: 12/19/94
DATE COMPLETED: 12/19/94

DILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 412824.7974 / E 358579.1243

TOTAL BORING DEPTH (ft): 8
GROUND SURF. ELEV. (ft-msl): 58.80
TOP OF CASING ELEV. (ft-msl): 62.28
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
		4/4	NA	SILTY SAND, brown silty sand with root material, moist.			SM	1-1/4-in. Dia., 0.020-in. Screen
				SAND WITH GRAVEL, orange brown medium to coarse sand with gravel. It=2			GM	
	4/4	NA		SAND WITH GRAVEL, orange brown sand with gravel.			GM	

BOTTOM OF BORING=8 ft-bgs
DEPTH TO WATER:
First Encountered: 5.9 ft-bgs
Completion: NA ft-bgs
Static: 5.25 ft-bgs



SILT
CLAY
SAND

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCGS Survey Sea Level Datum (1983)

302616

Page 1 of 1

TOTAL BORING DEPTH (ft): 10
GROUND SURF. ELEV. (ft-msl): 62.70
TOP OF CASING ELEV. (ft-msl): 63.31
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

BOTTOM OF BORING=10 ft-dgs
DEPTH TO WATER:
First Encountered: 7.1 ft-dgs
Completion: NA ft-dgs
Static: 4.80 ft-dgs

302617

LOG OF BORING: PZ-06

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801480.005
DATE STARTED: 12/19/94
DATE COMPLETED: 12/19/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1/14-inch
DRILLING BIT: Drive Point
COORDINATES: N 413134.1971 / E 358942.3714

TOTAL BORING DEPTH (ft): 10
GROUND SURF. ELEV. (ft-msl): 65.10
TOP OF CASING ELEV. (ft-msl): 65.75
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
0				SILTY SAND, medium brown silty sand, root material.			ML SM	
1								
2		4/4	NA	SAND orange brown medium grained sand, moist.				
3								
4				SAME AS ABOVE.				
5							SM	
6		4/4	NA					
7								
8				SAME AS ABOVE, saturated.				
9		2/2	NA					
10								
11				BOTTOM OF BORING=10 ft-bgs DEPTH TO WATER: First Encountered: 6.9 ft-bgs Completion: NA ft-bgs Static: 5.65 ft-bgs				
12								
13								
14								
15								



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCGS Survey Sea Level Datum (f

302618


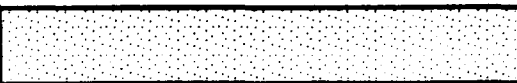


LOG OF BORING: PZ-07

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 12/19/94
DATE COMPLETED: 12/19/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/HELL DIAMETER: 1/14-inch
DRILLING BIT: Drive Point
COORDINATES: N 413034.6985 / E 358913.6541

TOTAL BORING DEPTH (ft): 9.5
GROUND SURF. ELEV. (ft-msl): 64.60
TOP OF CASING ELEV. (ft-msl): 65.54
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
1		4/4	NA	SILTY SAND, brown silty sand, root material.			ML SH	1-1/4-in. Dia., 0.020-in. Screen
2		4/4	NA	SAND yellowish brown fine to medium sand, moist.			SM	
3				SAME AS ABOVE.			GM	
4		4/4	NA	Black stained coarse grained sand, strong ash like odor. Saturated at 7.0 ft.				
5								
6								
7								
8								
9		1.5/1.5	NA	SAND AND GRAVEL, black stained, saturated.				
10								
11								
12								
13								
14								
15								

BOTTOM OF BORING=9.5 ft-bgs
DEPTH TO WATER:
First Encountered: 7.8 ft-bgs
Completion: NA ft-bgs
Static: 4.80 ft-bgs



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
pdm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCG Survey See Level Datum (1

302619

Page 1 of 1

TOTAL BORING DEPTH (ft): 11
GROUND SURF. ELEV. (ft-msl): 83.80
TOP OF CASING ELEV. (ft-msl): 84.27
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

in - Indicates inches

NA - Indicates not applicable to this boring

ppm - Indicates parts per million

ft-bgs - Indicates feet below ground surface

ft-toc - Indicates feet below top of casing

Elevn. from USCS6 Survey Sea Level Datum (

LOG OF BORING: PZ-09

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09,0801480,005
DATE STARTED: 12/18/94
DATE COMPLETED: 12/18/94

DRIILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 412752.1280 / E 358845.7340

TOTAL BORING DEPTH (ft): 11
GROUND SURF. ELEV. (ft-msl): 63.70
TOP OF CASING ELEV. (ft-msl): 64.33
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
1				SILTY SAND, light brown silty sand, construction debris, root material, moist.			ML SM	
2	4/4	NA		SILTY SAND, brown silty sand with gravel, moist.			SM	
3				CLAYEY SAND, light gray clayey sand, moist.			SM CL	
4	4/4	NA		SAND, orange brown medium to coarse sand, moist.			SM	
5				SAME AS ABOVE				
6								
7								
8								
9	1.5/1.5	NA						
10								
11								
12								
13								
14								
15								

BOTTOM OF BORING=11 ft-bgs
DEPTH TO WATER:
First Encountered: 6.5 ft-bgs
Completion: NA ft-bgs
Static: 4.45 ft-bgs



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCG6 Survey Sea Level Datum (ft)

302621

Page 1 of 1

SAMPLE NUMBER	BLOWS/6-IN.	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
		4/4	NA	SILTY CLAY, brown silty clay, some sand, root material.			CL	1-1/4-in. Dia., 0.020-in. Screen
		4/4	NA	CLAYEY SAND, light gray clayey sand with orange brown mottling.			SC	
		1.5/1.5	NA	SAND AND GRAVEL, orange brown sand and gravel, wet.			SM/GM	
BOTTOM OF BORING=8.5 ft-dgs DEPTH TO WATER: First Encountered: 7.8 ft-dgs Completion: NA ft-dgs Static: 3.25 ft-dgs								

NOTES:

- In - Indicates inches
- NA - Indicates not applicable to this boring
- ppm - Indicates parts per million
- ft-dgs - Indicates feet below ground surface
- ft-toc - Indicates feet below top of casing
- Elev. from USCGS Survey See Level Datum (1989)

LOG OF BORING: PZ-11

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 12/19/94
DATE COMPLETED: 12/19/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1/14-inch
DRILLING BIT: Drive Point
COORDINATES: N 412942.2203 / E 358977.9071

TOTAL BORING DEPTH (ft): 10
GROUND SURF. ELEV. (ft-msl): 64.60
TOP OF CASING ELEV. (ft-msl): 66.82
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
0				SILTY SAND, brown to orange brown, silty sand, root material, moist.			ML SM	
1								
2		4/4	NA	FILL, black ash, white paint like sludge, strong odro, saturated.			FILL	
3								
4								
5								
6		4/4	NA					
7								
8				SAND AND GRAVEL, medium to coarse sadn with gravel, black stained saturated.			SM GW	
9		2/2	NA	Orange brown medium to coarse sand, saturated.				
10								
11				BOTTOM OF BORING=10 ft-bgs DEPTH TO WATER: First Encountered: 6.5 ft-bgs Completion: NA ft-bgs Static: 5.90 ft-bgs				
12								
13								
14								
15								



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCG Survey Sea Level Datum (1

302623

LOG OF BORING: PZ-12

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 12/19/84
DATE COMPLETED: 12/19/84

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WEEL DIAMETER: 1-1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 413087.8483 / E 359080.1964

TOTAL BORING DEPTH (ft): 10
GROUND SURF. ELEV. (ft-msl): 65.20
TOP OF CASING ELEV. (ft-msl): 65.63
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER		BLOWS/6-IN		RECOVERY (FT)		Headspace (ppm)		DESCRIPTION		REMARKS		LITHOLOGY		USCS TYPE		BOREHOLE	
				4/4		NA		SILTY SAND, brown silty sand with clay, root material.						ML SM			
				4/4		NA		SAND, yellowish brown sand with medium gravel.						SM			
				4/4		NA		SAND AND GRAVEL, orangish brown sand and gravel.						SM			
				4/4		NA		Orangish brown sand with medium to coarse gravel.						SM			
		2/2		NA				SAND, orangish brown medium to coarse sand to 10 ft.						SM			

FT-BGS

1-1/4-in. Dia., 0.020-in. Screen

302674

LOG OF BORING: PZ-13

Page 1 of 2

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801480.005
DATE STARTED: 12/19/94
DATE COMPLETED: 12/19/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1-1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 412592.2989 / E 358991.8758

TOTAL BORING DEPTH (ft): 15
GROUND SURF. ELEV. (ft-msl): 69.10
TOP OF CASING ELEV. (ft-msl): 70.11
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
0				SILTY SAND, brown silty sand with root material.			ML SM	
1								
2		4/4	NA	SAND, orange brown medium to coarse sand, moist.				
3								
4				SAME AS ABOVE				
5							SM	
6		4/4	NA					
7								
8				SAME AS ABOVE				
9		4/4	NA					
10								



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elev. from USCGS Survey Sea Level Datum (ft)

302625

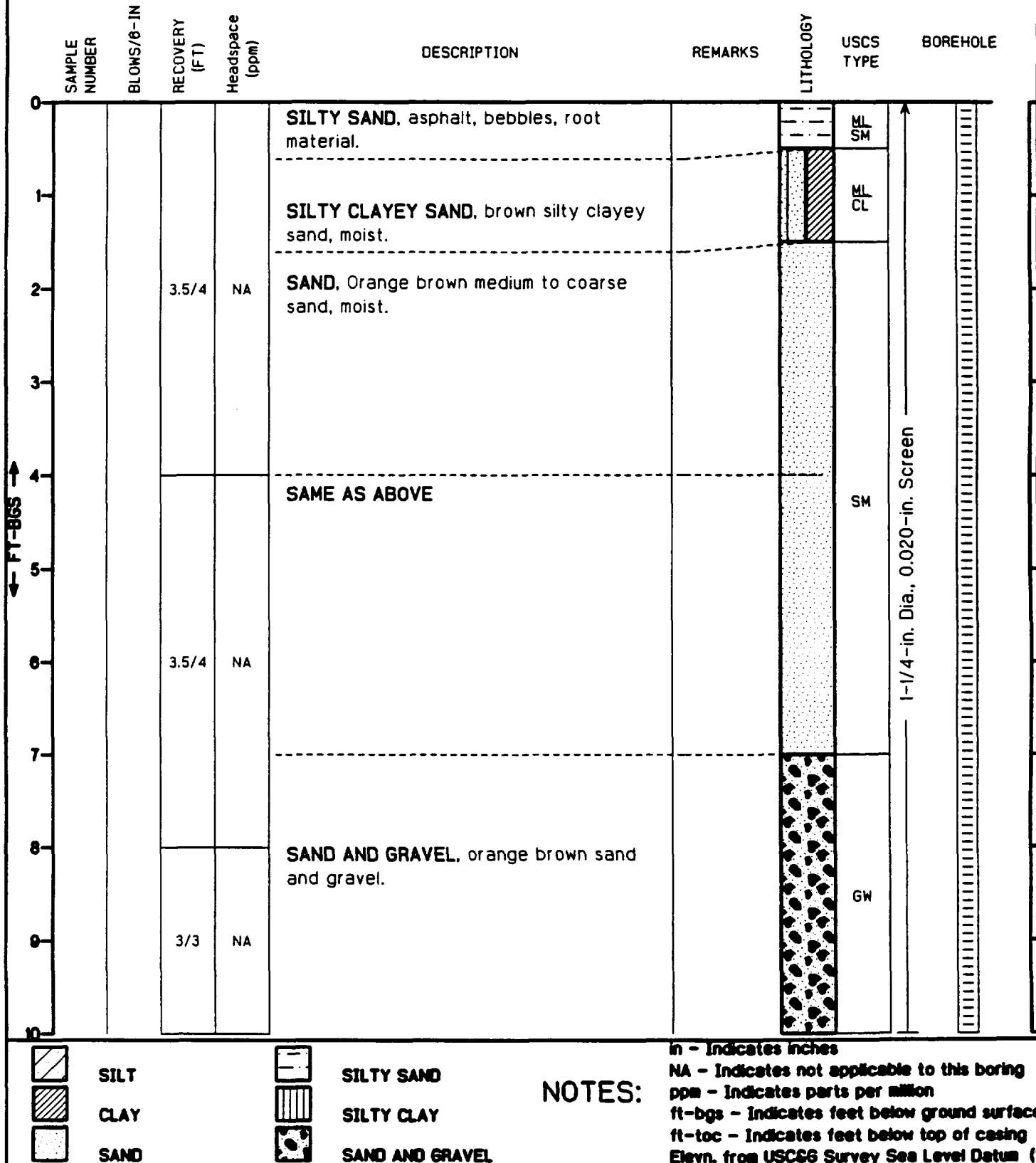
LOG OF BORING: PZ-14

Page 1 of 2

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801480.005
DATE STARTED: 12/19/94
DATE COMPLETED: 12/19/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1-1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 412783.5949 / E 359138.1588

TOTAL BORING DEPTH (ft): 14
GROUND SURF. ELEV. (ft-msl): 69.20
TOP OF CASING ELEV. (ft-msl): 71.24
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



302627

LOG OF BORING: PZ-14

CLIENT NAME: PPG Industries, Inc.

PAGE 2 of 2

GEOLOGIST: F. Coll

PROJECT NO.: 09.0801460.005

CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/8-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	Screen BOREHOLE
10				SAME AS ABOVE, saturated.				
11		3/3	NA					
12				SAME AS ABOVE			GW	
13		2/3	NA					
14								
15								
16								
17								
18								
19								
20								

BOTTOM OF BORING=14 ft-bgs

DEPTH TO WATER:

First Encountered: 8.5 ft-bgs

Completion: NA ft-bgs

Static: 10.60 ft-bgs



SILT

CLAY

SAND



SILTY SAND

SILTY CLAY

SAND AND GRAVEL

NOTES:

in - Indicates inches

NA - Indicates not applicable to this boring

ppm - Indicates parts per million

ft-bgs - Indicates feet below ground surface

ft-toc - Indicates feet below top of casing

Elevn. from USCGS Survey Sea Level Datum (1

302628

LOG OF BORING: PZ-15

Page 1 of 2

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801480.005
DATE STARTED: 12/18/94
DATE COMPLETED: 12/18/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1-1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 412872.9425 / E 359310.2880

TOTAL BORING DEPTH (ft): 14
GROUND SURF. ELEV. (ft-msl): 69.00
TOP OF CASING ELEV. (ft-msl): 70.36
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
0				SILTY SAND, medium brown silty sand, root material.			ML SM	
1				SAND, orange brown medium to coarse sand with some gravel, moist.				
2		3.5/4	NA					
3								
4				SAME AS ABOVE				
5								
6		3.5/4	NA				SM	
7								
8				SAME AS ABOVE				
9		4/4	NA					
10								



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCGS Survey Sea Level Datum

1-1/4-in. Dia., 0.010-in. Screen

302629

Page 1 of 1

TOTAL BORING DEPTH (ft): 10
GROUND SURF. ELEV. (ft-msl): 65.00
TOP OF CASTING ELEV. (ft-msl): 66.58
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCGS Survey Sea Level Datum (T

302631

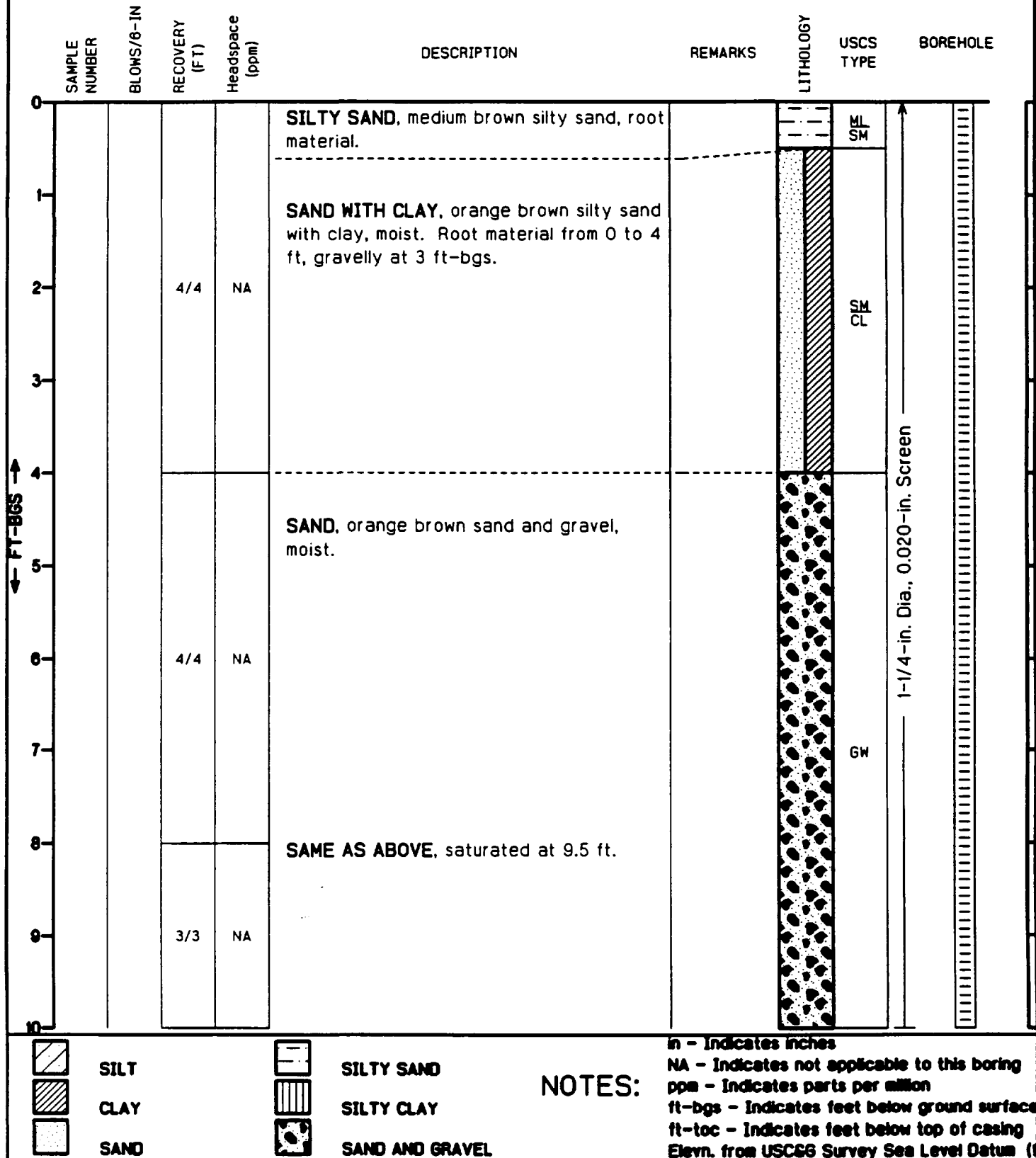
LOG OF BORING: PZ-17

Page 1 of 2

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 12/20/94
DATE COMPLETED: 12/20/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1-1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 412329.3693 / E 359421.1287

TOTAL BORING DEPTH (ft): 14
GROUND SURF. ELEV. (ft-msl): 67.80
TOP OF CASING ELEV. (ft-msl): 70.65
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart



302632

LOG OF BORING: PZ-17



CLIENT NAME: PPG Industries, Inc.

PAGE 2 of 2

GEOLOGIST: F. Coll

PROJECT NO.: 09.0801460.005

CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
		3/3	NA	SAME AS ABOVE, saturated.			GM	

BOTTOM OF BORING=14 ft-bgs
DEPTH TO WATER:
First Encountered: 9.5 ft-bgs
Completion: NA ft-bgs
Static: 12.45 ft-bgs



in - Indicates inches

NA - Indicates not applicable to this boring
ppm - Indicates parts per million

NOTES:

SILTY SAND

SILT

SILTY CLAY

clay

SAND AND GRAVEL

SAND

Elevn. from USCGS Survey See Level Datum (1

Page 1 of 1

TOTAL BORING DEPTH (ft): 10
GROUND SURF. ELEV. (ft-msl): 64.70
TOP OF CASING ELEV. (ft-msl): 65.43
DRILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
		2.5/4	NA	SILTY SAND, brown silty sand, root material, moist.			ML SM	
		3.5/4	NA	SAND, orange brown medium to coarse sand and gravel.			GM	
		2/2	NA	SAME AS ABOVE.				
				SAME AS ABOVE, saturated.				

FT-B65

↓ ↑

1-1/4-in. Dia., 0.020-in. Screen






BOTTOM OF BORING=10 ft-dgs

DEPTH TO WATER:

First Encountered: 6.4 ft-dgs

Completion: NA ft-dgs

Static: 7.4 ft-dgs

 SAND
 CLAY
 SILTY SAND
 SILTY CLAY
 SAND AND GRAVEL

NOTES:
 n - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft-toc - Indicates feet below top of casing
 Elevn. from USCGS Survey Sea Level Datum (

302634

LOG OF BORING: PZ-20

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 12/20/94
DATE COMPLETED: 12/20/94

DILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DILLING CO.: NCP Analytical
BOREHOLE/WELL DIAMETER: 1-1/4-inch
DILLING BIT: Drive Point
COORDINATES: N 412078.1969 / E 359714.8544

TOTAL BORING DEPTH (ft): 10
GROUND SURF. ELEV. (ft-msl): 58.80
TOP OF CASING ELEV. (ft-msl): 60.43
DILLERS: Tom / Nick
GEOLOGIST: F. Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
0				SILTY SAND, brown silty sand, root material, moist.		ML SH		
1				SANDY CLAY, greenish gray silty sand with clay, orange brown mottling.		SM CL		
2	4/4	NA						
3				SAND, orange brown medium to coarse sand with gravel, moist.				
4				SAME AS ABOVE, saturated at 4.5 ft.				
5								
6	3.5/4	NA					SM	
7								
8				SAME AS ABOVE.				
9	2/2	NA						
10								
11								
12								
13								
14								
15								

BOTTOM OF BORING=10 ft-bgs
DEPTH TO WATER:
First Encountered: 5.0 ft-bgs
Completion: NA ft-bgs
Static: 3.90 ft-bgs



SILT
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elevn. from USCG Survey Sea Level Datum (1983)

302636

LOG OF BORING: PZ-21

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown/New Jersey
PROJECT NO.: 09.0801480.005
DATE STARTED: 12/20/94
DATE COMPLETED: 12/20/94

DRILLING METHOD: Geoprobe
SAMPLING METHOD: Macro Core Sampler
DRILLING CO.: NCP Analytical
BOREHOLE/WEEL DIAMETER: 1-1/4-inch
DRILLING BIT: Drive Point
COORDINATES: N 411864.0734 / E 359601.0132

TOTAL BORING DEPTH (ft): 8
GROUND SURF. ELEV. (ft-msl): 55.40
TOP OF CASING ELEV. (ft-msl): 57.54
DRILLERS: Tom / Nick
GEOLOGIST: F. Coil
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (FT)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	BOREHOLE
		4/4	NA	SILTY SAND, brown silty sand, root material, moist.			ML SM	1-1/4-in. Dia., 0.020-in. Screen
				SAND CLAY, greenish gray sandy clay, orange brown mottling, moist			SM CL	
				SAND, Orange brown medium to coarse sand, wet.			SM	
	2.5/4	NA		SAME AS ABOVE, wet at 4.0 ft.			SM CL	
				Grading into sandy clay, medium stiff.				
				Dark gray sandy clay.				
				BOTTOM OF BORING=8 ft-bgs DEPTH TO WATER: First Encountered: 3.9 ft-bgs Completion: NA ft-bgs Static: 2.75 ft-bgs				



SILTY SAND
CLAY
SAND



SILTY SAND
SILTY CLAY
SAND AND GRAVEL

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft-toc - Indicates feet below top of casing
Elev. from USCGS Survey Sea Level Datum (1

302637

LOG OF BORING: MW-07

Page 1 of 2

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hollow Stem Auger	TOTAL BORING DEPTH (ft): 14.3
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Bailer	GROUND SURF. ELEV. (ft-msl): 63.60
PROJECT NO.: 09.0801460.005	DRILLING CO.: CT&E Environmental	TOP OF CASING ELEV. (ft-msl): 66.01
DATE STARTED: 01/25/95	BOREHOLE/WELL DIAMETER: 9-inch	DRILLERS:
DATE COMPLETED: 01/25/95	DRILLING BIT: 4-1/4-in. HSA	GEOLOGIST: Fred Coll
	NORTHING/EASTING: N 413031.1090 / E 358847.3405	CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/8-IN	RECOVERY (in)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	WELL CONSTRUCT.
0								
1	SS-1	18/24	0	SILTY SAND, brown silty sand with root material grading into light brownish gray fine to medium sand with silt and clay.				
2				SAME AS ABOVE			SM ML	
3	SS-2	6/24	0					
4				SAND AND GRAVEL, orange brown medium to coarse sand with gravel, trace clay, saturated at 4 ft-bgs.				
5	SS-3	24/24	0					
6				SAME AS ABOVE, saturated with discreet clay rich stringers.				
7	SS-4	24/24	0				GW	
8				SAME AS ABOVE, dark gray sandy micaceous clay, dry.				
9	SS-5	24/24	0					
10								



SILT
CLAY
LAMINATED CLAY



Bentonite Grout
Shale Bedrock
Sand and Gravel

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCG Survey Sea Level Datum (1929)

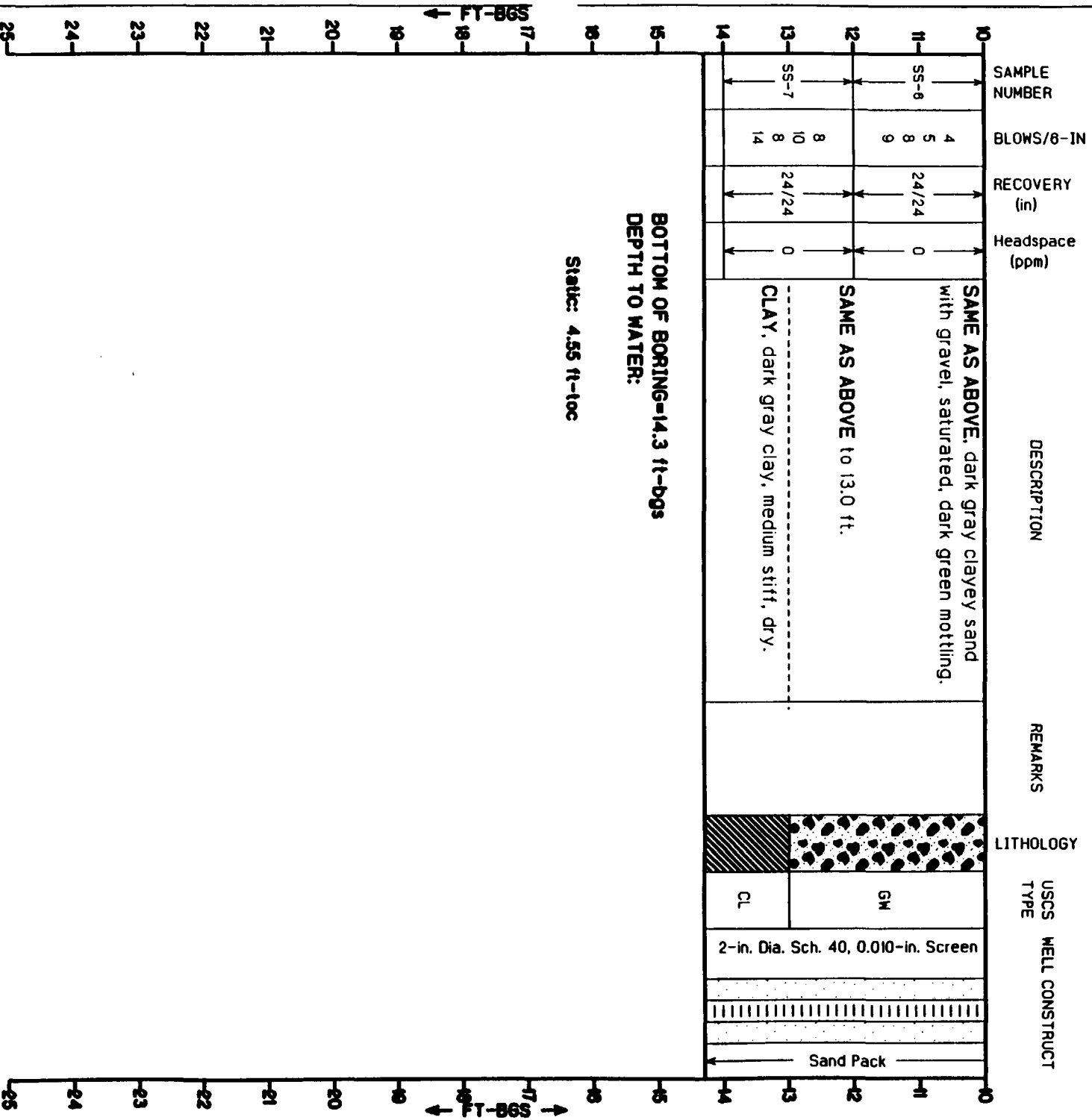
302638

LOG OF BORING: MW-07

CLIENT NAME: PPG Industries, Inc.
PROJECT NO.: 09.0801480.005

PAGE 2 of 2

GEOLOGIST: Fred Coll
CONSULTANT: McLaren/Hart



SILT
CLAY
LAMINATED CLAY



Bentonite Grout
Shale Bedrock
Sand and Gravel

NOTES:

n - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGS Survey See Level Datum (1929)

302639

LOG OF BORING: MW-08

Page 1 of 1

CLIENT NAME: PPG Industries, Inc.
 LOCATION: Moorestown, New Jersey
 PROJECT NO.: 09.0801480.005
 DATE STARTED: 01/24/95
 DATE COMPLETED: 01/25/95

DRILLING METHOD: Hollow Stem Auger
 SAMPLING METHOD: Bailor
 DRILLING CO.: CT&E Environmental
 BOREHOLE/WELL DIAMETER: 9-inch
 DRILLING BIT: 4-1/4-in. HSA
 NORTHING/EASTING: N 41387.1364 / E 358487.0762

TOTAL BORING DEPTH (ft): 10.5
 GROUND SURF. ELEV. (ft-msl): 56.10
 TOP OF CASING ELEV. (ft-msl): 57.32
 DRILLERS:
 GEOLOGIST: Fred Coll
 CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (in)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	WELL CONSTRUCT.
1-SS-1	1 1 1	12/24	0	SILTY SAND, medium brown silty sand with root material, grading into medium gray clayey sand with gravel, moist, medium stiff with orange brown mottling.			SM ML	2-in. Dia. Sch. 40 PVC Riser
2-SS-2	8 8 8	18/24	0	SAME AS ABOVE.			SM ML	2-in. Dia. Sch. 40 PVC Riser
3-SS-3	4 7 11 13	20/24	0	SANDY CALY, medium gray sandy clay with orange brown mottling, medium stiff, moist.			SM CL	2-in. Dia. Sch. 40 PVC Riser
4-SS-4	18 21 19 14	24/24	0	CLAY, dark gray clay, stiff, somewhat dry, and some orange brown mottling.			CL	2-in. Dia. Sch. 40, 0.010-in. Screen
5-SS-5	4 5 5 9	24/24	0					Sand Pack
				BOTTOM OF BORING=10.5 ft-bgs DEPTH TO WATER:				
				Static: 2.60 ft-toc				



SILT
CLAY
LAMINATED CLAY



Bentonite Grout
Sand Bedrock
Sand and Gravel

NOTES:

in - Indicates inches
 MA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elevn. from USCGS Survey Sea Level Datum (1929)

302640

LOG OF BORING: MW-09

Page 1 of 2

CLIENT NAME: PPG Industries, Inc.	DRILLING METHOD: Hollow Stem Auger	TOTAL BORING DEPTH (ft): 16
LOCATION: Moorestown, New Jersey	SAMPLING METHOD: Bailer	GROUND SURF. ELEV. (ft-msl): 70.60
PROJECT NO.: 09.0801480.005	DRILLING CO.: CT&E Environmental	TOP OF CASING ELEV. (ft-msl): 72.31
DATE STARTED: 01/24/95	BOREHOLE/WELL DIAMETER: 9-inch	DRILLERS:
DATE COMPLETED: 01/25/95	DRILLING BIT: 4-1/4-in. HSA	GEOLOGIST: Fred Coll
	NORTHING/EASTING: N 412532.8077 / E 358996.0628	CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (in)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	WELL CONSTRUCT.
0				FILL, fill material, asphalt, roots, gravel.			FILL	
1 SS-1	9 9 6 4	0/24	0	SILTY SAND, brown silty sand with gravel, moist.				Cement
2				SAME AS ABOVE, orange brown silty sand with trace gravel, moist.				
3 SS-2	5 5 6 7	18/24	0					Bent. Pellets
4				SAME AS ABOVE, orange brown medium to coarse sand with trace gravel, moist.				
5 SS-3	6 9 9 12	24/24	0				SM ML	
6				SAME AS ABOVE.				
7 SS-4	23 17 13 18	24/24	0					Sand Pack
8				SAME AS ABOVE, wet at 9 ft-bgs.				
9 SS-5	7 8 7 8	24/24	0					



SILT

CLAY

LAMINATED CLAY



Bentonite Grout

Shale Bedrock

Sand and Gravel

NOTES:

in - Indicates inches

NA - Indicates not applicable to this boring

ppm - Indicates parts per million

ft-bgs - Indicates feet below ground surface

ft - Indicates depth in feet

Elevn. from USCGS Survey Sea Level Datum (1929)

302641

LOG OF BORING: MW-09

CLIENT NAME: PPG Industries, Inc.
PROJECT NO.: 08.0801460.005

PAGE 2 of 2

GEOLOGIST: Fred Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (in)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	WELL CONSTRUCT
11-SS-6	7 10 10 10	14/24	0	SAME AS ABOVE, saturated.				
12-SS-7	5 9 23 23	24/24	0	SAME AS ABOVE, trace gravel, saturated.				
13-SS-7	14 8 4 14	24/24	0	SAME AS ABOVE, saturated.				
14-SS-8				CLAY, orange brown medium stiff clay with red mottling.			CL	
BOTTOM OF BORING=16 ft-bgs DEPTH TO WATER: Static: 12.10 ft-toc								
15-SS-8								
16-SS-8								
17-SS-8								
18-SS-8								
19-SS-8								
20-SS-8								
21-SS-8								
22-SS-8								
23-SS-8								
24-SS-8								
25-SS-8								

	SILT		Bentonite Grout
	CLAY		Shale Bedrock
	LAMINATED CLAY		Sand and Gravel

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCG Survey See Level Datum (1929)

302642

LOG OF BORING: MW-10

Page 1 of 2

CLIENT NAME: PPG Industries, Inc.
LOCATION: Moorestown, New Jersey
PROJECT NO.: 09.0801460.005
DATE STARTED: 01/24/95
DATE COMPLETED: 01/24/95

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Bailer
DRILLING CO.: CT&E Environmental
BOREHOLE/WELL DIAMETER: 9-inch
DRILLING BIT: 4-1/4-in. HSA
NORTHING/EASTING: N 412218.5998 / E 359364.870

TOTAL BORING DEPTH (ft): 14
GROUND SURF. ELEV. (ft-msl): 87.20
TOP OF CASING ELEV. (ft-msl): 69.23
DRILLERS:
GEOLOGIST: Fred Coll
CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/8-IN	RECOVERY (in)	Headspace (ppm)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	WELL CONSTRUCT.
0								
1 SS-1	1 3 3	18/24	0	SILTY SAND, brown silty sand with root material trace gravel.			SM	2-in. Dia. Sch. 40 PVC Riser
2				SAME AS ABOVE				
3 SS-2	2 2 8 15	12/24	0	SAND AND GRAVEL, orange brown sand and gravel, some clay, moist.				
4								
5 SS-3	7 17 34 20	12/24	0					
6				SAME AS ABOVE, orange brown quartz sand and gravel, moist.			GW	2-in. Dia. Sch. 40, 0.010-in. Screen
7 SS-4	17 23 30 58	18/24	0					
8				SAME AS ABOVE.				
9 SS-5	22 24 33 35	12/24	0					
10								



SILT
CLAY
LAMINATED CLAY



Bentonite Grout
Shale Bedrock
Sand and Gravel

NOTES:

in - Indicates inches
NA - Indicates not applicable to this boring
ppm - Indicates parts per million
ft-bgs - Indicates feet below ground surface
ft - Indicates depth in feet
Elevn. from USCGG Survey Sea Level Datum (1929)

302643

LOG OF BORING: MW-10

CLIENT NAME: PPG Industries, Inc.

PAGE 2 of 2

GEOLOGIST: Fred Coll

PROJECT NO.: 09.0801460.005

CONSULTANT: McLaren/Hart

SAMPLE NUMBER	BLOWS/6-IN	RECOVERY (in)	Headspace (feet)	DESCRIPTION	REMARKS	LITHOLOGY	USCS TYPE	WELL CONSTRUCTION
88-6	33 41 11 7	12/24	0	SAME AS ABOVE, with some silt, saturated at 8.9 ft.			SW	
				CLAY, orange brown medium stiff clay at 11 ft.				
88-7	4 4 3 10	24/24	0	SAME AS ABOVE clay becoming dark gray and slightly micaceous, dry.			CL	
<p>BOTTOM OF BORING-14 ft-bgs DEPTH TO WATER:</p> <p>Static: 10.10 ft-toc</p>								

	SILT		Bentonite Grout
	CLAY		Shale Bedrock
	LAMINATED CLAY		Sand and Gravel

NOTES:

in - Indicates inches
 NA - Indicates not applicable to this boring
 ppm - Indicates parts per million
 ft-bgs - Indicates feet below ground surface
 ft - Indicates depth in feet
 Elev. from USCGS Survey Sea Level Datum (1929)

302644







TEST PIT LOG: TP -05

Page: 1 of 1

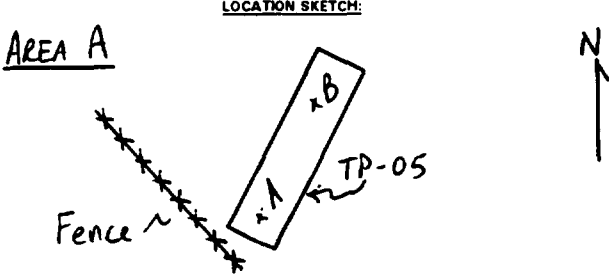
Client Name:	PPG Industries, Inc.	Excavation Method:	Backhoe	Test Pit Dimensions:	18 ft x 3 ft x 6ft
Project Number:	09.0801460.006	Sampling Method:	Grab	Ground Surface Elev. (ft-msl):	81.30 ft-msl
Location:	Moorestown, NJ	Subcontractor:	N/A	Northing/Easting:	412692.8148 / 358700.4762
Date/Time Started:	12/13/95 - 1443	Monitoring Equipment:	Hnu and	Geologist/Engineer:	F. Coll
Date/Time completed:	12/13/95 - 1510		EPA Method TO4	Consultant:	McLaren/Hart

ft. bgs	Sample No.	DESCRIPTION	REMARKS	Lithology	USCS	ft. bgs
0						0
1	TP-05B/1-2	-0-2 ft: yellowish brown sand with some clay -some construction debris encountered 1-2 ft bgs at north end of excavation	Sample B collected Debris included bricks, black ash material, concrete, and wood		SM	1
2		-2-4 ft: light brown sandy clay with distinct sand lenses				2
3					CL	3
4		-4-6 ft: med. gray clay, medium stiff, few sand horizons				4
5	TP-05A/5-6	-water encountered at 5.5 ft bgs	Sample A collected		CL	5
6						6
7		* end of excavation				7
8						8
9						9
10						10

LEGEND:

 Silt	 Sulfur
 Clay	 Sand & Gravel
 Sand	 Debris / Fill material

LOCATION SKETCH:



NOTES:

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface
ft-msl - indicates feet above mean sea level
(Elevations from NAGD-83)
N/A - indicates not applicable to this boring
ppm - indicates parts per million

302645

TEST PIT LOG:

TP -06

Page: 1 of 1

Client Name:	PPG Industries, Inc.	Excavation Method:	Backhoe	Test Pit Dimensions:	30 ft x 3 ft x 6ft
Project Number:	09.0801480.006	Sampling Method:	Grab	Ground Surface Elev. (ft-msl):	64.48 ft-msl
Location:	Moorestown, NJ	Subcontractor:	N/A	Northing/Easting:	412908 3588 / 358958 3558
Date/Time Started:	12/13/95 - 1125	Monitoring Equipment:	Hnu and	Geologist/Engineer:	F. Coll
Date/Time completed:	12/13/95 - 1250		EPA Method TO4	Consultant:	McLaren/Hart

ft - bgs	Sample No.	ft - bgs	DESCRIPTION	REMARKS	Lithology	USCS	ft - bgs
0							0
1	TP-06A/1-2		-0-1 ft: brown silty clay with orangish brown staining -1-2 ft: debris zone including wood, metal, rubber, and a brilliant orange-colored zone; overlying a sulfur zone -2-4 ft: orangish brown silty clay	Sample A collected		CL	1
2							2
3			-thin seam of flowing tar-like material at 3.0 ft bgs			CL	3
4			-4-5 ft: more debris incl. white, paint-like sludge material and black, ash-like material				4
5	TP-06B/5-6		-5-6 ft: pale green silty sand (north end of excavation)	Duplicate w/Sample B (near			5
6	TP-06C/5-6		-5-5.5 ft: encountered drum fragments (rusted and broken)	drums fragments)			6
7			-water encountered at ~6.5 ft bgs	Collected Sample C (from visually unimpacted zone below drums)		SM	7
8			* end of excavation				8
9							9
10							10

LEGEND:

Silt	Sulfur
Clay	Sand & Gravel
Sand	Debris / Fill material

LOCATION SKETCH:

AREA A

x - sample locations

NOTES:

in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface
ft-msl - indicates feet above mean sea level
(Elevations from NAGD-83)
N/A - indicates not applicable to this boring
ppm - indicates parts per million

302646

TEST PIT LOG:

TP -07

Page: 1 of 1

Client Name: PPG Industries, Inc.	Excavation Method: Backhoe	Test Pit Dimensions: 20 ft x 3 ft x 9ft
Project Number: 09.0801460.006	Sampling Method: Grab	Ground Surface Elev. (ft-msl): 65.30 ft-msl
Location: Moorestown, NJ	Subcontractor: N/A	Northing/Easting: 413095.7038 / 399005.0825
Date/Time Started: 12/13/95 - 0930	Monitoring Equipment: Hnu end	Geologist/Engineer: F. Coll
Date/Time completed: 12/13/95 - 1020	EPA Method T04	Consultant: McLaren/Hart

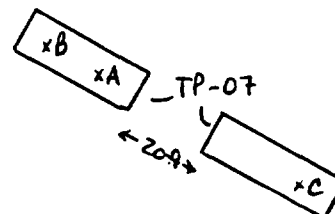
ft. bgs	Sample No.	How (ppm)	DESCRIPTION	REMARKS	Lithology	USCS	ft. bgs
0							0
1			-0-2 ft: brown silty sand with orangish brown mottling with debris incl. metal fragments, plastic sheeting, black, ash-like material and white chalk-like material encountered from 1 to 4.5 ft bgs (debris in both north and south excavations)	Wet ash-like, burnt odor		SM	1
2							2
3	TP-07A/3-4					SM	3
4	TP-07B/4-5			Visually unimpacted			4
5			-orangish brown sand and gravel			SW	5
6							6
7			-same as above			SW	7
8							8
9	TP-07C/8-9		-water encountered at approximately 8.5 ft bgs -dark gray, stiff clay at ~9.0 ft bgs			CL	9
10			*end of excavation				10

Silt	Sulfur
Clay	Sand & Gravel
Sand	Debris / Fill material

NOTES: in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface
ft-msl - indicates feet above mean sea level
(Elevations from NA GD-83)
N/A - indicates not applicable to this boring
ppm - indicates parts per million

AREA A

LOCATION SKETCH:



x - sample location

302647







TEST PIT LOG:

TP -08

Page: 1 of 1

Client Name: PPG Industries, Inc.	Excavation Method: Backhoe	Test Pit Dimensions: 20 ft x 3 ft x 6ft
Project Number: 09.0801460.006	Sampling Method: Grab	Ground Surface Elev. (ft-mal): 66.06 ft-mal
Location: Moorestown, NJ	Subcontractor: N/A	Northing/Easting: 412999.8407 / 359129.2644
Date/Time Started: 12/13/95 - 1345	Monitoring Equipment: Hnu and	Geologist/Engineer: F. Coll
Date/Time completed: 12/13/95 - 1430	EPA Method TO4	Consultant: McLaren/Hart

ft - bgs	Sample No.	ft-mal (ppm)	DESCRIPTION	REMARKS	Lithology	USCS	ft-bgs
0							0
1	TP-08A/1-2		-0-1 ft: orangish brown silty sand with gravel			SM	1
2			-1-4 ft: several drum fragments encountered, rusted and broken; pale red powdery material in one and white, chalk-like material in another	Sample A collected from within discolored drum fragment zone			2
3							3
4			-orangish brown sand with silt and gravel				4
5	TP-08B/5-6			Sample B collected		SM	5
6							6
7			* end of excavation				7
8							8
9							9
10							10

 Silt	 Sulfur
 Clay	 Sand & Gravel
 Sand	 Debris / Fill material

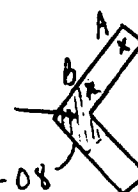
NOTES: in - indicates inches
ft - indicates depth in feet
ft-bgs - indicates feet below ground surface
ft-mal - indicates feet above mean sea level
(Elevations from NAGD-83)
N/A - indicates not applicable to this boring
ppm - indicates parts per million

LOCATION SKETCH:

AREA A

Buried drums

TP-08



N
↑

x - sample locations

302648

TEST PIT LOG:

TP -11

Page: 1 of 1

Client Name: PPG Industries, Inc.		Excavation Method: Backhoe		Test Pit Dimensions: 12 ft x 3 ft x 5 ft	
Project Number: 09.0801480.006		Sampling Method: Grab		Ground Surface Elev. (ft-mal): 55.80 ft-mal	
Location: Moorestown, NJ		Subcontractor: N/A		Northing/Easting: 411855 / 359946	
Date/Time Started: 12/14/95 - 1005		Monitoring Equipment: Hnu and		Geologist/Engineer: F. Coll	
Date/Time completed: 12/14/95 - 1055		EPA Method T04		Consultant: McLaren/Hart	

ft. bgs	Sample No.	Thw (ppm)	DESCRIPTION	REMARKS	Lithology	USCS	ft. bgs
0							0
1	TP-11A/1-2		-0-6 in: med gray sand and gravel w/ free sulfur			SW	1
2			-6 in -2 ft: sulfur zone; underlain by 1 in of dark brown natural organic debris including wood and leaves	Sample A collected		SW	2
3	TP-11B/2-3		-2-4 ft: med. gray clayey sand	Appears unimpacted		SC	3
4			-orangish brown sand and gravel; encountered water at approximately 4 ft-bgs; pulled out a section of ceramic 4 in diameter pipe at 4.5 ft bgs	Sample B collected		SW	4
5			* end of excavation				5
6							6
7							7
8							8
9							9
10							10

LEGEND:

Silt	Sulfur
Clay	Sand & Gravel
Sand	Debris / Fill material

AREA B

SB-63 ●

LOCATION SKETCH:

x - sample location

NOTES:

in - indicates inches

ft - indicates depth in feet

ft-bgs - indicates feet below ground surface

ft-mal - indicates feet above mean sea level (Elevations from NAGD-83)

N/A - indicates not applicable to this testing

ppm - indicates parts per million

302649

TEST PIT LOG: ST-01

Page: 1 of 1

Client Name:	PPG Industries, Inc.	Excavation Method:	Backhoe	Test Pit Dimensions:	20 ft x 3 ft x 8ft
Project Number:	09.0801480.006	Sampling Method:	Grab	Ground Surface Elev. (ft-mal):	67.23 ft-mal
Location:	Moorestown, NJ	Subcontractor:	N/A	Northing/Easting:	412246.1531 / 389341.8908
Date/Time Started:	12/13/95 - 1545	Monitoring Equipment:	Hnu and	Geologist/Engineer:	F. Coll
Date/Time completed:	12/13/95 - 1645		EPA Method T04	Consultant:	McLaren/Hart

ft bgs	Sample No.	DESCRIPTION	REMARKS	Lithology	USCS	ft bgs
0						0
1		-0-1 ft: brown silty sand, dry			SM	1
2		-encountered a brick dome-like structure filled with soil	No odor; debris symbology			2
3		-same as above; excavating inside brick dome-like structure, soils appear clean with no odors or discolorations	used to denote brick dome structure		SM	3
4						4
5		-same as above			SM	5
6						6
7		-same as above, dry			SM	7
8						8
9	ST-01/8-9	-same as above, dry; bottom of brick dome not encountered	Sample collected from 8-9 ft bgs			9
10		*end of excavation				10

Silt	Sulfur
Clay	Sand & Gravel
Sand	Debris / Fill material

LOCATION SKETCH:

AREA B



x - sample location

NOTES:
 in - indicates inches
 ft - indicates depth in feet
 ft-bgs - indicates feet below ground surface
 ft-mal - indicates feet above mean sea level
 (Elevations from NAGD-83)
 N/A - indicates not applicable to this boring
 ppm - indicates parts per million

302650

APPENDIX B
CALCULATIONS OF AIRBORNE CONCENTRATIONS

SUBJECT GPS-1 Calibration and Flow Calculation JOB NO. 0908 01960 017 007
PPG Moorestown
Moorestown, NJ

Purpose: Determine the volume of air passing through the PUFF Cartridge utilized during Test Operations on 12/13/94 at PPG Moorestown.

Procedure:

- A. Utilize readings obtained from sampler calibration (See page 2)
- B. Determine atmospheric conditions on site from the local weather service (See page 2)
- C. Calculate flow rates based on Calibration certificate supplied by the manufacturer (See page 2)
- D. Plot flow rate vs. direct gauge reading for use in determining field operating flow rate (See page 3)
- E. From direct gauge readings obtained in the field determine the volume of air passing through sampler. (See page 2)

Results: High Volume sampler collected 116.1 M³ of air during the time period from 0800 to 1817 on 12/13/94.

Analytical Results of air sample indicates sample concentration of 160 ng/sample.

$$\frac{160 \text{ ng/sample}}{116.1 \text{ m}^3/\text{sample}} = 1.37 \text{ ng/m}^3$$

$$= .00137 \text{ ug/m}^3$$

GPS-1 HIGH VOLUME AIR SAMPLER CALIBRATION AND FLOW RATE DETERMINATION

CALIBRATION

MAGNEHELIC GAUGE	MANOMETER IN H2O	TEMP (K)	ATM PRESS (MM HG)	Qstd (M ³ /min)
70	10.8	273	773.3665	0.371218826
60	9.5	273	773.3665	0.348542071
50	7.6	273	773.3665	0.312393471
40	6.2	273	773.3665	0.282751166
30	4.5	273	773.3665	0.241796525

LINEAR REGRESSION

$$Y = 0.003241 X + 0.14925$$

Qstd (From Manufacturer)

M = 9.49

B = -0.058246

$$Qstd = (\text{SQRT}(dH \cdot Pa / 760 \cdot 298.18 / Ta) - B) / M$$

ATMOSPHERIC CONDITIONS FOR 12/13/94

TEMP	(F)	(C)	(K)
HIGH	38	3.33	276.33
LOW	26	-3.33	269.67
AVG	32	0	273

TIME	PRESSURE	
	(IN Hg)	(mm Hg)
850	30.48	774.192
1150	30.45	773.43
1550	30.42	772.668
1950	30.44	773.176
AVERAGE		773.3665

VOLUME OF AIR PASSING THROUGH CARTRIDGE

	TIME (MINUTES)	MAG READING	FLOW (M ³ /min) (FROM GRAPH)
BEGIN	480	9.5	0.1800395
END	1097	14.5	0.1962445
AVERAGE	-	12	0.188142

TOTAL 617 0.188142

116.08 M³ AIR THROUGH FILTER

BY LAB DATE 12/27/94
CHKD _____ DATE _____

McLAREN / HART

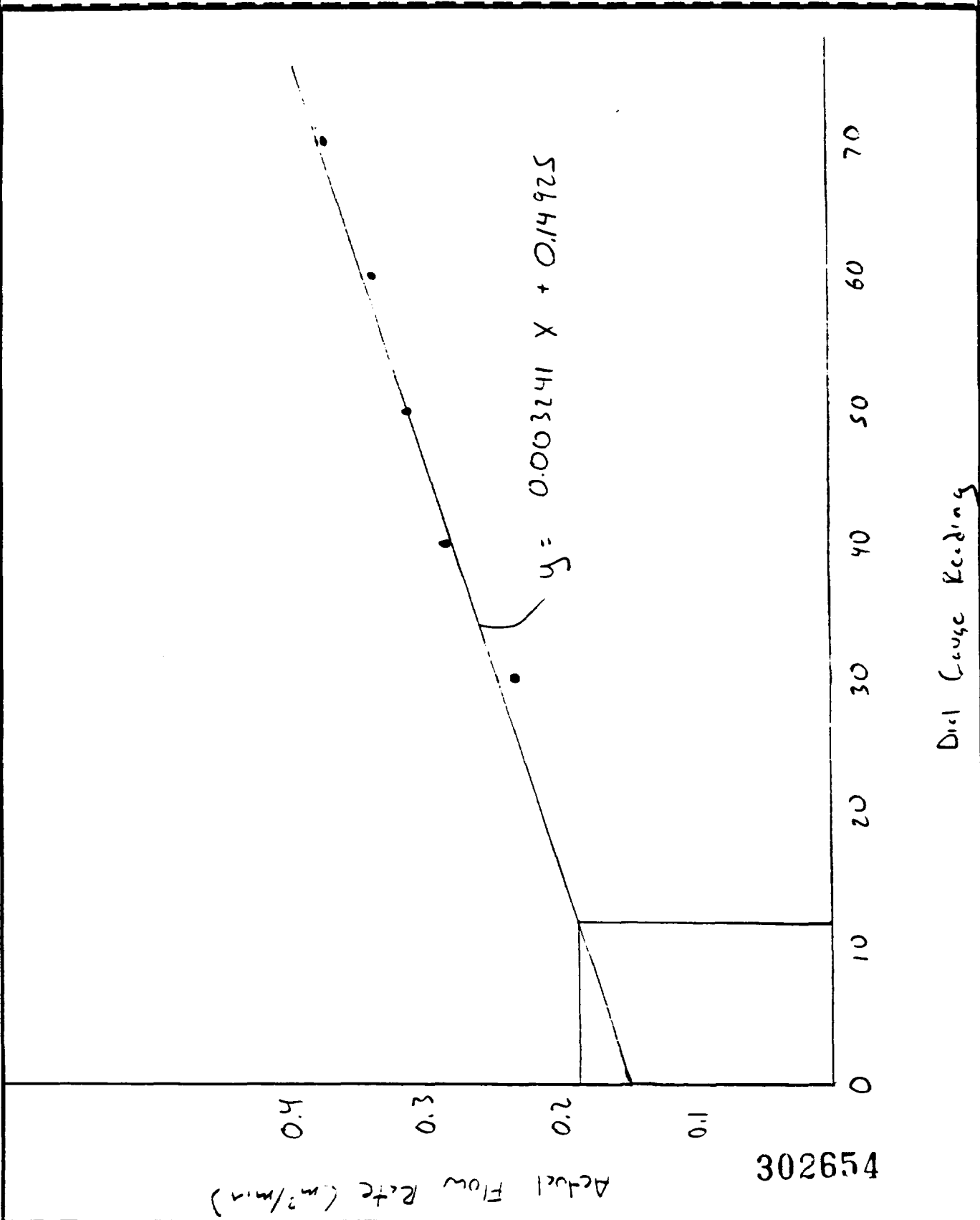
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3 OF 6

PAGE

SUBJECT GPS-1 Calibration and Flow Calculation

JOB NO. 090801960.001.005



High Volume Orifice Calibration Certificate

4.56

Pa: 762.5 mm of Hg Roots Meter Serial No.: 7509364 Calibration Performed by: S.BUTLER
Ta: 20.0 °C Calibrator Orifice Model No.: 40A Calibration Date: 14 NOV 94
RH: 54 % Calibrator Orifice Serial No.: 378N Date placed in service: _____

Q Standard Calibration Data

(1)	(2)	(3)	(4)	(5)	(6)	(7) X	(8)	(9) Y
Run Point No.	Elapsed Time-Δt Min.	Initial Volume VM M ³	Meter Inlet Static Pressure-ΔP mm of Hg	Standard Volume Vstd M ³	Calibrator Orifice Static Pressure-ΔH in. of H ₂ O mm of Hg	Metric Flow Rate Qstd M ³ /min.	English Flow Rate Qstd ft ³ /min.	
1	6.466	1	3.3	1.016	2.0	3.74	0.157	5.5
2	3.951	1	9.6	1.007	5.5	10.27	0.255	9.0
3	3.164	1	15.0	1.000	8.5	15.87	0.316	11.2
4	2.699	1	20.4	0.993	11.5	21.48	0.368	13.0
5	2.401	1	25.8	0.986	14.5	27.08	0.411	14.5
6	2.235	1	29.4	0.981	16.5	30.82	0.439	15.5
$\sqrt{\frac{\Delta H}{\left(\frac{Pa}{760}\right) \left(\frac{298.18}{Ta}\right)}}$								
Slope(m): 9.49 Intercept(b): -0.058246 Correlation Coefficient(r): 0.999977								

Q Actual Calibration Data

(1)	(2)	(3)	(4)	(5a)	(6)	(7a) X	(9a) Y
Run Point No.	Elapsed Time-Δt Min.	Initial Volume VM M ³	Meter Inlet Static Pressure-ΔP mm of Hg	Actual Volume Va M ³	Calibrator Orifice Static Pressure-ΔH in. of H ₂ O mm of Hg	Metric Flow Rate Qa M ³ /min.	
1	6.466	1	3.3	0.996	2.0	3.74	0.154
2	3.951	1	9.6	0.987	5.5	10.27	0.250
3	3.164	1	15.0	0.980	8.5	15.87	0.310
4	2.699	1	20.4	0.973	11.5	21.48	0.361
5	2.401	1	25.8	0.966	14.5	27.08	0.402
6	2.235	1	29.4	0.961	16.5	30.82	0.430
$\sqrt{\frac{\Delta H}{\left(\frac{Ta}{Pa}\right)}}$							
Slope(m): 5.95 Intercept(b): -0.035959 Correlation Coefficient(r): 0.999978							

Equations:

$$Vstd(5) = Vm(3) \frac{(Pa - \Delta P) Tstd}{Pstd \times Ta}$$

$$Qstd = \frac{Vstd}{\Delta t}$$

$$Va(5a) = Vm(3) \frac{(Pa - \Delta P)}{Pstd}$$

$$Qa = \frac{Vstd}{\Delta t}$$

Standard Conditions:

Tstd= 25°C= 298.18°K
Pstd= 760mm of Hg

For additional information consult:

1. The Federal Register, Vol.47, No. 234, pp. 54896-54921, December 6, 1982.
2. Quality Assurance Handbook, Vol.II (EPA 600/4-77-277a), Section 2.11.
3. Graseby/GMW/Andersen Instruction Manual.

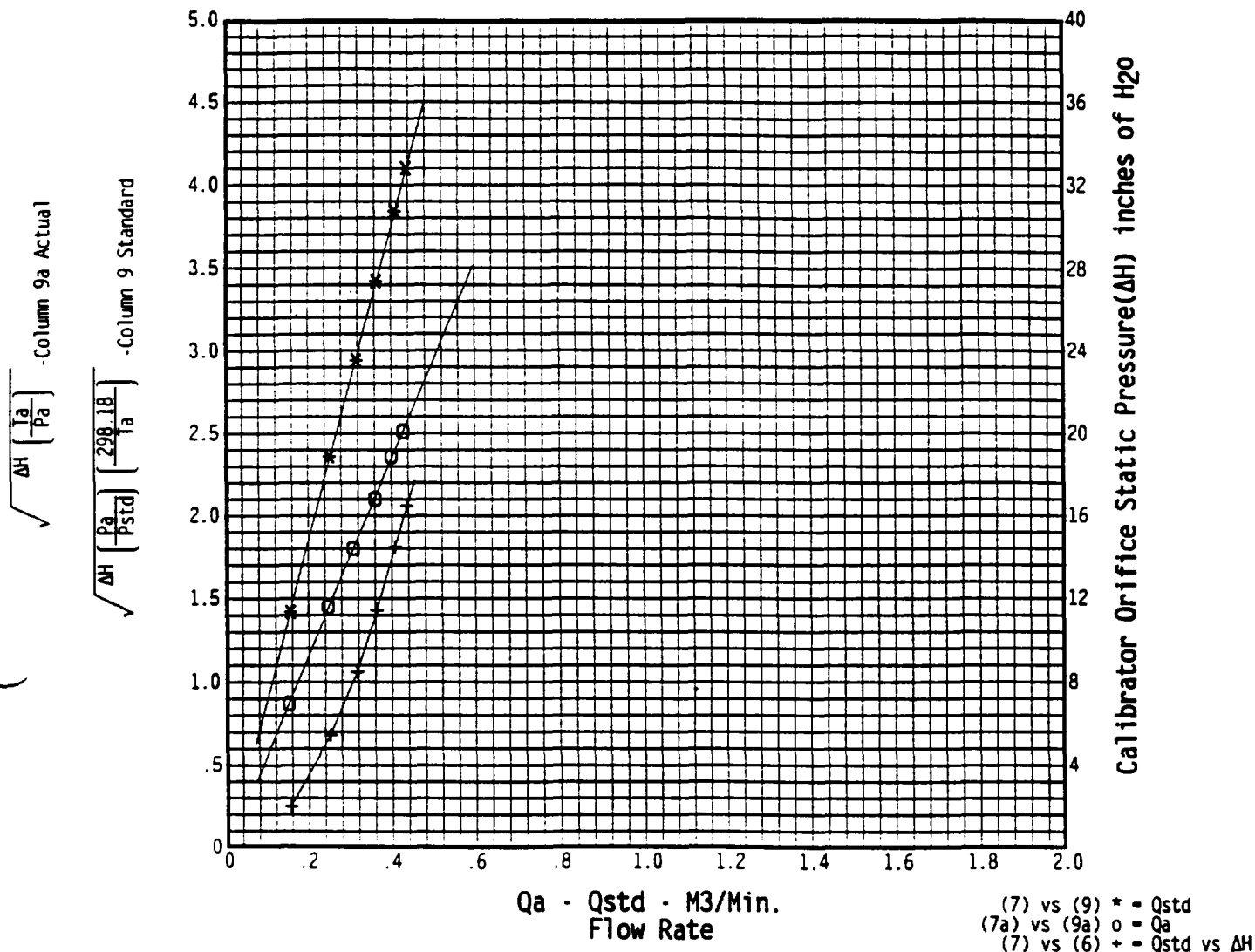
Notes:

1. EPA recommends calibrators should be recalibrated after one year of field use.

302655

5 of 6

Plot of Linear Regression Qstd/Qa and Traditional Qstd - ΔP (Note ΔH is inches of H2O)



Use of Curve for determining Qa or Qstd.

To find Qa calculate:

$$Qa = \left[\frac{\Delta H \cdot Ta}{Pa} \right]^{\frac{1}{2}}$$

To find Qstd calculate:

$$Qstd = \left[\Delta H \cdot \frac{Pa}{760} \cdot \frac{298.18}{Ta} \right]^{\frac{1}{2}}$$

Where:

ΔH= Calibrator Manometer Reading in inches of water.
Ta= Actual Absolute Temperature in degrees Kelvin(°K).
Pa= Actual Barometric Pressure in millimeters(mm) of Mercury(Hg).
b = Intercept
m = Slope

To find Qa or Qstd by Calculation.

To determine Qa calculate:

$$Qa = \frac{\left[\frac{\Delta H \cdot Ta}{Pa} \right]^{\frac{1}{2}}}{m} - b$$

To determine Qstd calculate:

$$Qstd = \frac{\left[\Delta H \cdot \frac{Pa}{760} \cdot \frac{298.18}{Ta} \right]^{\frac{1}{2}}}{m} - b$$

302656



DRESSER MANUFACTURING DIVISION
DRESSER MEASUREMENT

P.O. BOX 42176, HOUSTON, TEXAS 77242

UNIT DESCRIPTION:

ROOTS® METER TEST DATA SHEET

DATE : 06/10/92
BILL OF MATERIAL : 048553-120
MODEL : 5M125
SERIAL NO. : 7509364
ACCESSORY S/N :
CUSTOMER NO. :

PROVER : 50 cu. ft.

TEST SPECIFICATIONS

MAXIMUM FLOW: 5,000 cfh

MAXIMUM WORKING PRESSURE : 125 psig

MINIMUM STATIC
TEST PRESSURE: 250 psig

MINIMUM LEAK
TEST PRESSURE: 157 psig

TEST DATA

TEST POINT	FLOW RATE DISP. VOLUME cfh	PERCENT OF RATED CAPACITY	ACCURACY %	DIFFERENTIAL INCHES WATER COLUMN	PERCENT ERROR +/-
01	5,000	100 %	100.70	1.47	.70
02	4,000	80 %	100.54	.96	.54
03	3,000	60 %	100.51	.57	.51
04	1,995	40 %	100.40	.28	.40
05	1,000	20 %	100.37	.11	.37
06	500	10 %	100.26	.05	.26
07	250	5 %	99.95	.04	-.05

Above data has been determined from tests performed with air at atmospheric pressure and ambient temperature using positive displacement proving devices dimensionally traceable to the United States NIST.

Test date 06/10/92 by F.J.GRZELCZYK

302657

APPENDIX C
GEOTECHNICAL REPORTS

302658



Professional Service Industries, Inc.

Report To: McLaren Hart Engineers
8500 Brooketree Road
Suite 300
Wexford, PA 15090

Project: PPG - Morrestown

Attn: Mr. Jacob Bourdeau

Date: February 16, 1995

PSI File No: 803-55014-1

REMARKS:

Results of six (6) each of the following tests performed on samples submitted reference to the above project are attached:

- Grain Size w/Hydrometer (ASTM D-422)
- Specific Gravity (ASTM D-854)
- Atterberg Limits (ASTM D-4318)
- Moisture Content (ASTM D-2216)
- Bulk Density (ASTM D-2937)
- Hydraulic Conductivity (ASTM D-2434)
- Soil pH (ASTM D-4922)
- Total Organic Content (ASTM D-2974)

Respectfully submitted,

PROFESSIONAL SERVICES INDUSTRIES, INC.

Fred S. Tarquinio, P.E.
Manager, Geotechnical Services

Attachments

mcs

302659

PSI/Professional Service Industries, Inc._____

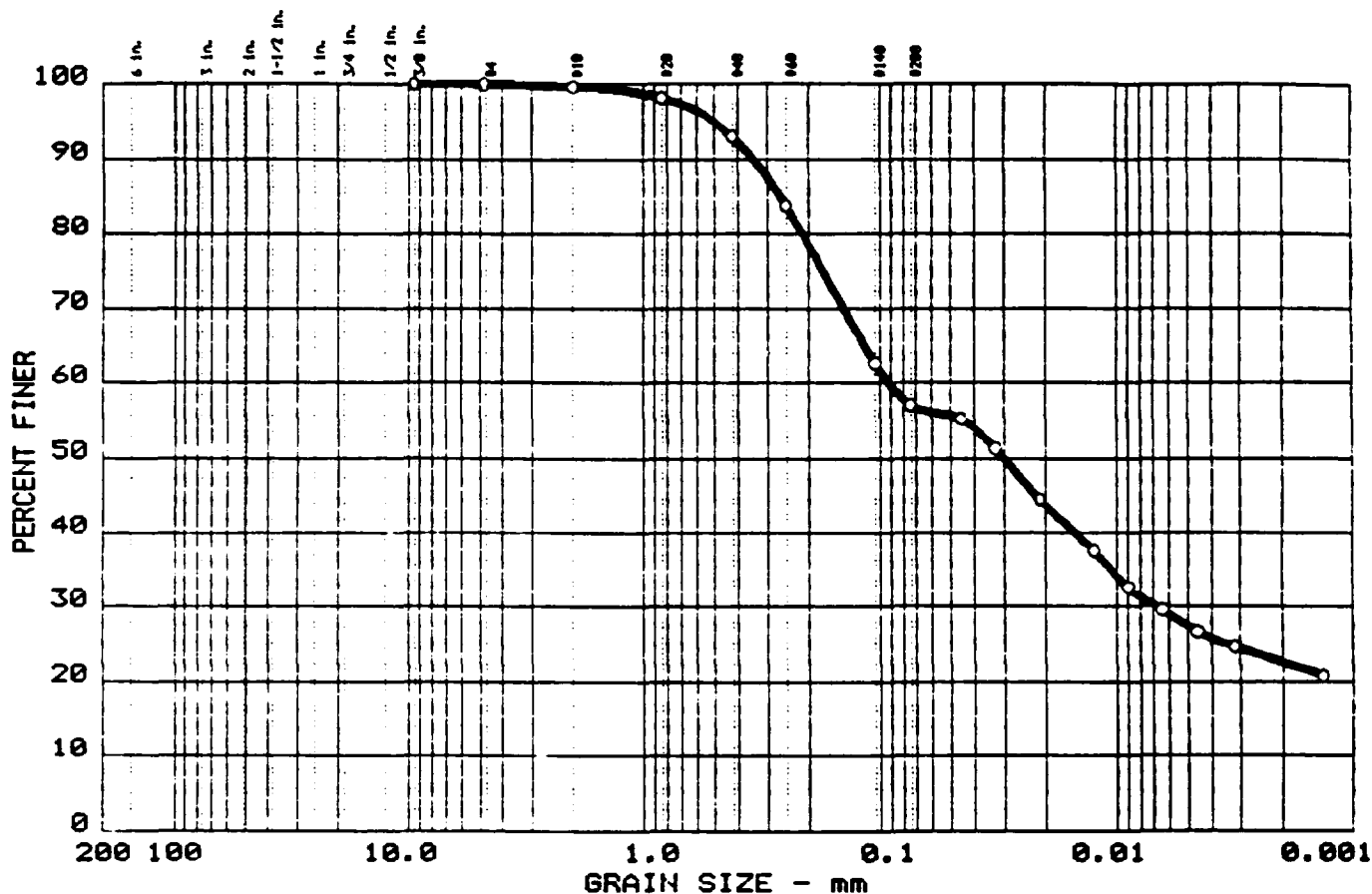
REPORT TO: McLaren Hart
SUBJECT: PPG Moorestown
DATE: February 16, 1995
PSI FILE NO: 803-55014-1

PERMEABILITY TEST RESULTS
(ASTM D-2434)

<i>Sample No.</i>	<i>Dry Density (pcf)</i>	<i>Moisture Content (%)</i>	<i>Coefficient of Permeability (cm./sec.)</i>
SH-01/MW-10/0-2	96.8	20.2	1.7×10^{-6}
SH-02/TP-11/0-2	99.1	2.1	1.2×10^{-7}
SH-03/MW-09/2-6	102.9	12.3	3.3×10^{-6}
SH-04/MW-07/1-3	111.6	17.2	4.2×10^{-7}
SH-05/MW-07/14-15.5	85.6	36.9	9.1×10^{-9}
SH-06/SB-07/0-2	102.2	4.1	9.7×10^{-8}

302660

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	%+75	% GRAVEL	% SAND	% SILT	% CLAY
11	0.0	0.0	42.9	29.7	27.4

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
24.5	8.0	0.26	0.09	0.03	0.007				

MATERIAL DESCRIPTION	USCS	AASHTO
SANDY LEAN CLAY	CL	A-4(1.9)

Project No.: 803-55014
 Project: McLAREN HART (PPG-MOORESTOWN)
 Location: SAMPLE NO. SH-01/MW-10/0-2

Date: 2-14-1995

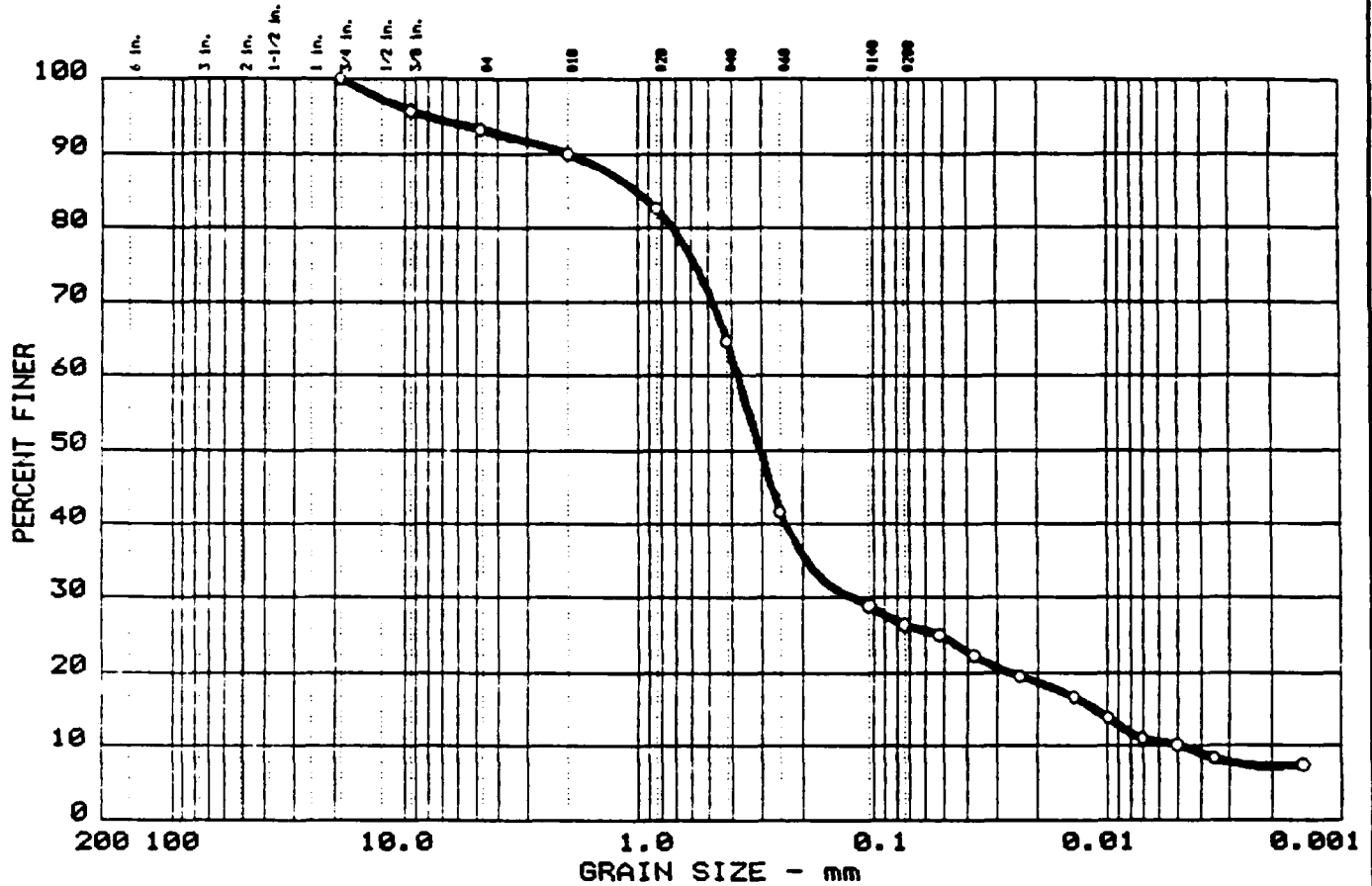
GRAIN SIZE DISTRIBUTION TEST REPORT
 PSI, Inc.

Remarks:
 SPECIFIC GRAVITY: 2.69
 MOISTURE CONTENT: 20.2%

Figure No.

302661

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	%+75 _µ	% GRAVEL	% SAND	% SILT	% CLAY
○ 12	0.0	6.8	66.9	16.2	10.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
○ N.P.	N.P.	1.00	0.38	0.31	0.123	0.0112	0.0048	8.38	78.9

MATERIAL DESCRIPTION	USCS	AASHTO
○ SILTY SAND (SAMPLE CONTAINS SOME SULPHUR)	SM	A-2-4(0.0)

Project No.: 803-55014
 Project: McLAREN HART (PPG-MOORESTOWN)
 ○ Location: SAMPLE NO. SH-02/TP-11/0-2

Date: 2-14-1995

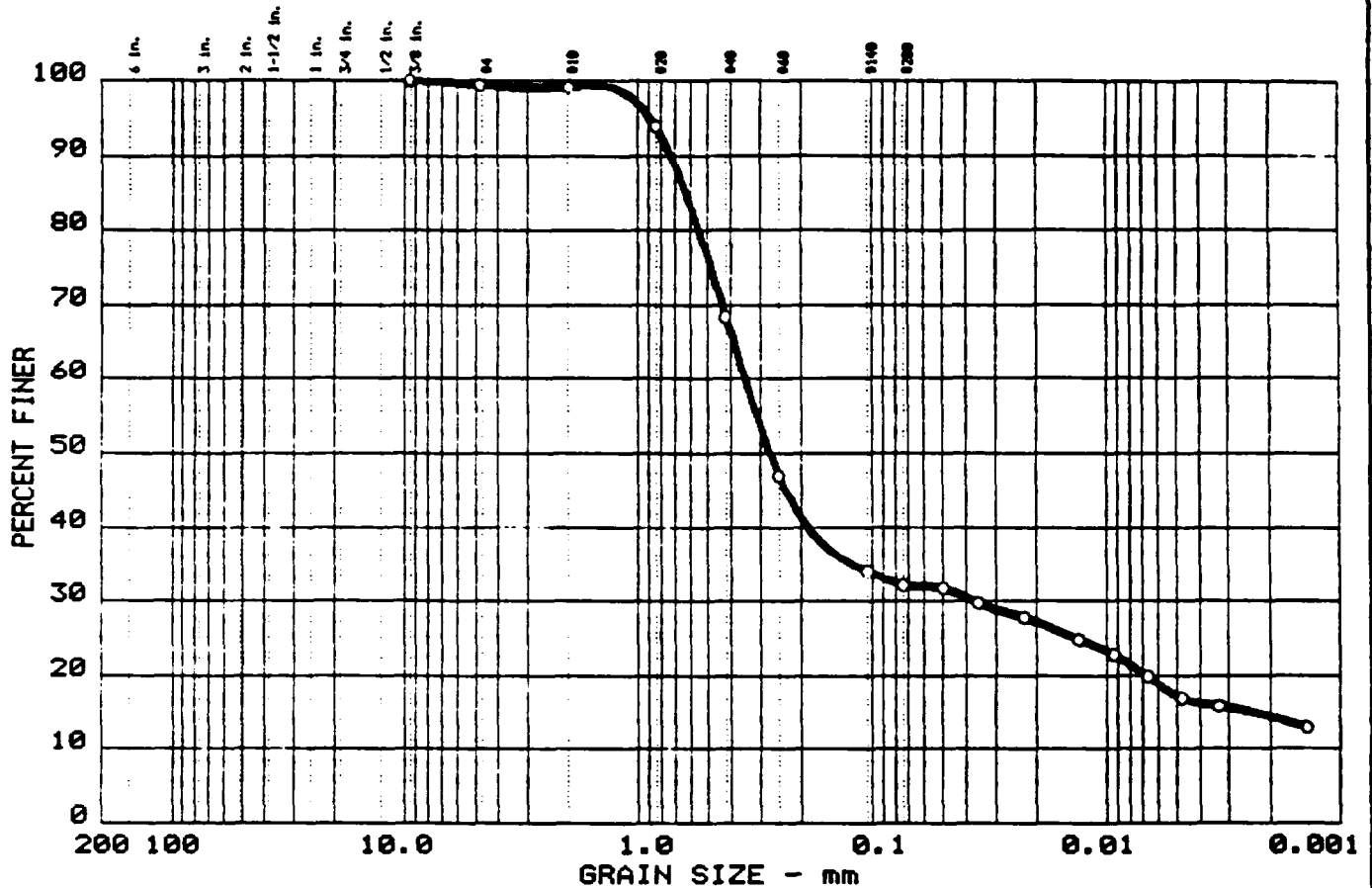
GRAIN SIZE DISTRIBUTION TEST REPORT
 PSI, Inc.

Remarks:
 SPECIFIC GRAVITY: 2.53
 MOISTURE CONTENT: 2.1%

Figure No. _____

302662

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	%+75 _μ	% GRAVEL	% SAND	% SILT	% CLAY
13	0.0	0.6	67.2	15.0	17.2

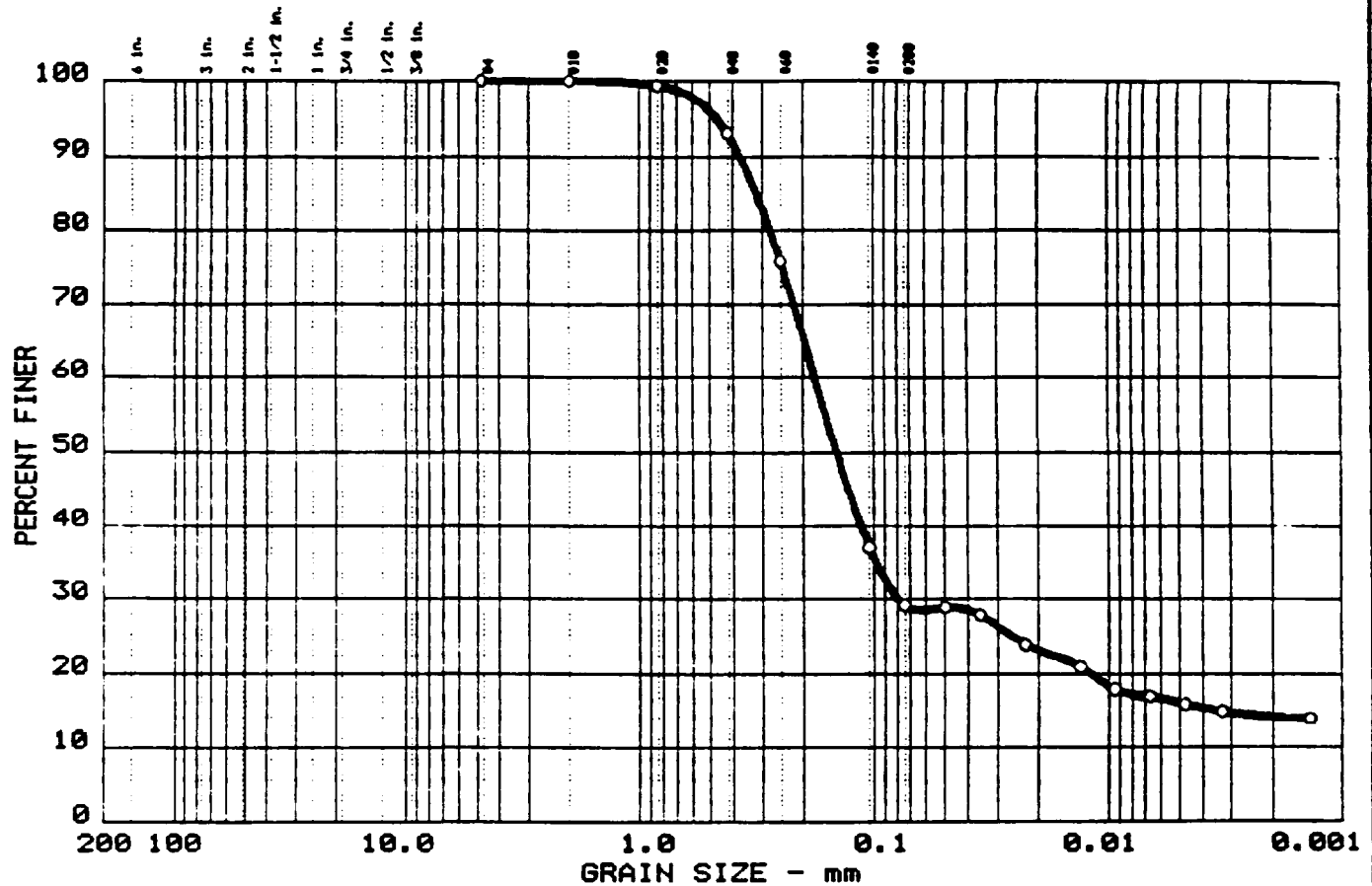
LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
21.2	4.2	0.62	0.35	0.27	0.037	0.0023			

MATERIAL DESCRIPTION	USCS	AASHTO
SILTY CLAYEY SAND	SC-SM	A-2-4(0.0)

Project No.: 803-55014 Project: McLAREN HART (PPG-MOORESTOWN) Location: SAMPLE NO. SH-03/MW-09/2-4 Date: 2-14-1995 GRAIN SIZE DISTRIBUTION TEST REPORT PSI, Inc.	Remarks: SPECIFIC GRAVITY: 2.65 MOISTURE CONTENT: 12.3% Figure No.
---	---

302663

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	%+75	% GRAVEL	% SAND	% SILT	% CLAY
14	0.0	0.0	70.8	13.1	16.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
N.P.	N.P.	0.32	0.18	0.14	0.078	0.0033			

MATERIAL DESCRIPTION	USCS	AASHTO
SILTY SAND	SM	A-2-4(0.0)

Project No.: 803-55014
 Project: McLAREN HART (PPG-MOORESTOWN)
 Location: SAMPLE NO. SH-04/MW-07/1-3

Date: 2-14-1995

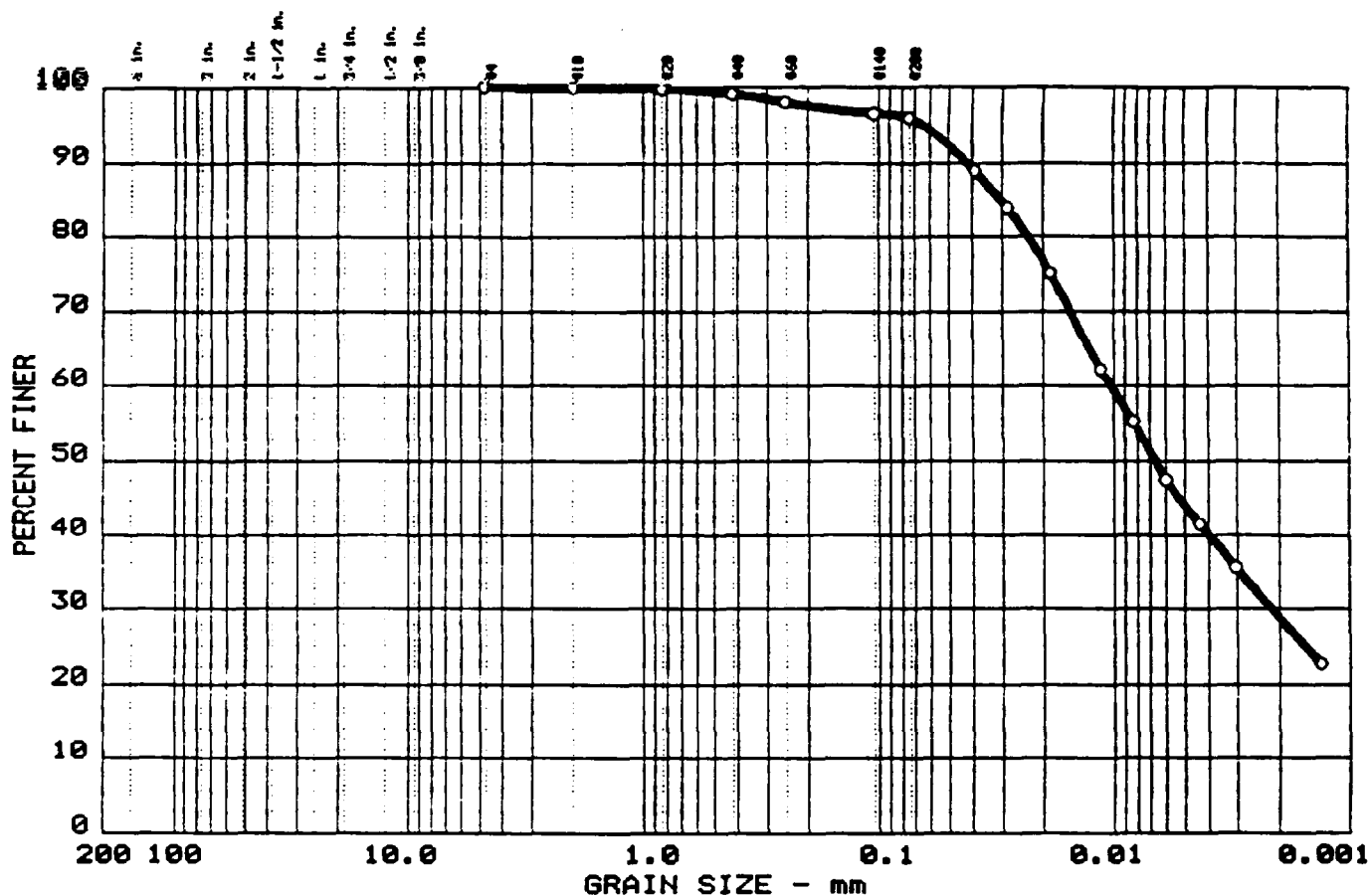
GRAIN SIZE DISTRIBUTION TEST REPORT
 PSI, Inc.

Remarks:
 SPECIFIC GRAVITY: 2.67
 MOISTURE CONTENT: 17.2%

Figure No.

302664

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	%+75 _u	% GRAVEL	% SAND	% SILT	% CLAY
15	0.0	0.0	4.1	52.0	43.9

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
63.4	34.2			0.01	0.002				

MATERIAL DESCRIPTION	USCS	AASHTO
○ FAT CLAY	CH	A-7-6(38.7)

Project No.: 803-55014
 Project: McLAREN HART (PPB-MOORESTOWN)
 Location: SAMPLE NO. SH-05/MW-07/14-15.5

Date: 2-14-1995

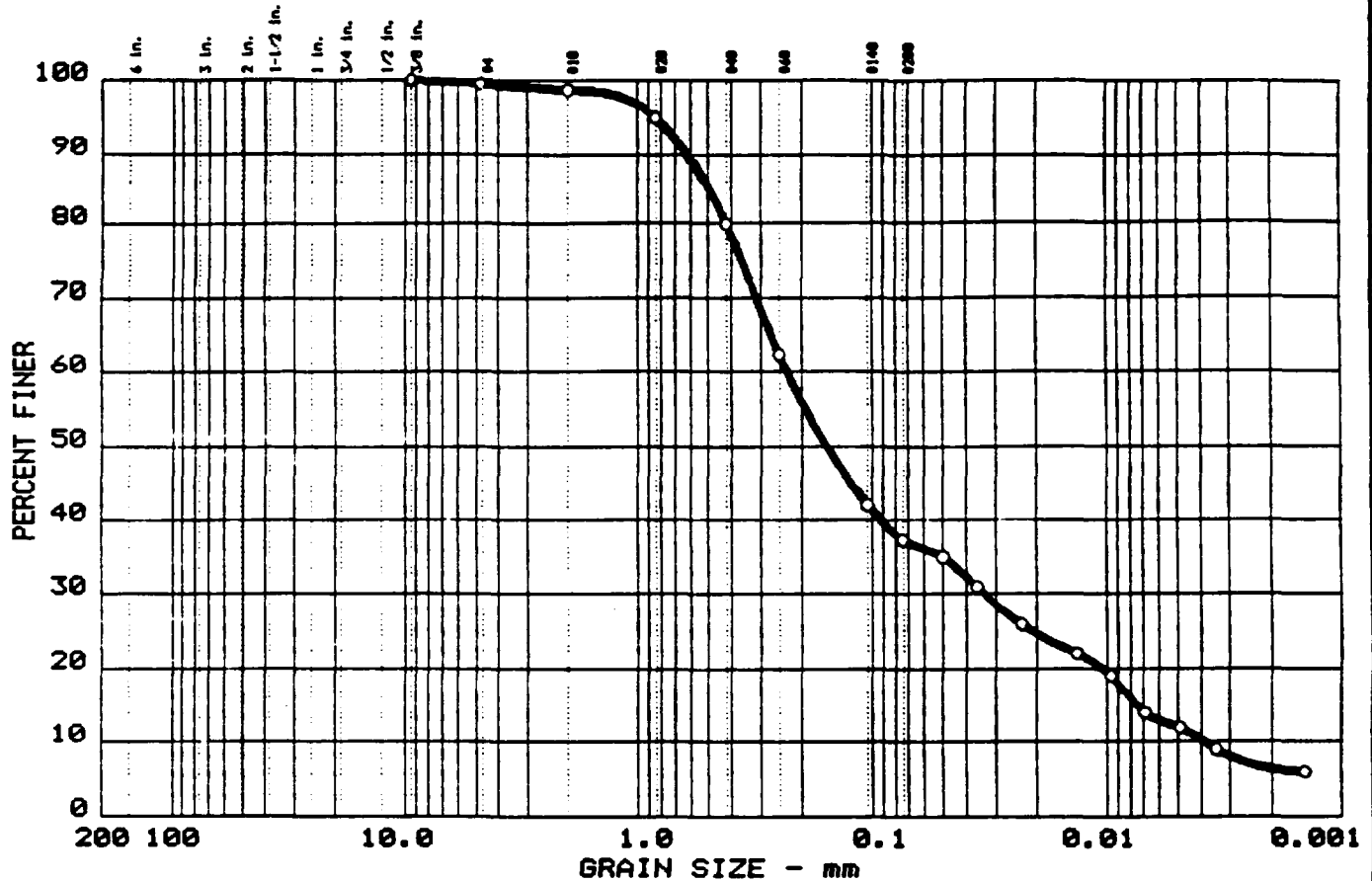
GRAIN SIZE DISTRIBUTION TEST REPORT
 PSI, Inc.

Remarks:
 SPECIFIC GRAVITY: 2.70
 MOISTURE CONTENT: 36.9%

Figure No.

302665

GRAIN SIZE DISTRIBUTION TEST REPORT



Test	%+75 _μ	% GRAVEL	% SAND	% SILT	% CLAY
16	0.0	0.5	62.2	25.2	12.1

LL	PI	D ₈₅	D ₆₀	D ₅₀	D ₃₀	D ₁₅	D ₁₀	C _c	C _u
23.9	3.5	0.50	0.23	0.16	0.033	0.0074	0.0038	1.23	60.3

MATERIAL DESCRIPTION	USCS	AASHTO
SILTY SAND (SAMPLE CONTAINS SOME SULPHUR)	SM	A-4(0.0)

Project No.: 803-55014
 Project: McLAREN HART (PPG-MOORESTOWN)
 Location: SAMPLE NO. SH-06/SB-07/0-2

Date: 2-14-1995

GRAIN SIZE DISTRIBUTION TEST REPORT
 PSI, Inc.

Remarks:
 SPECIFIC GRAVITY: 2.60
 MOISTURE CONTENT: 4.1%

Figure No.

302666



Professional Service Industries, Inc.

TESTED FOR: McLaren Hart

PROJECT: 803-55014

DATE RECEIVED: January 30, 1995

PA CERTIFIED ID NO.: 02-349

REPORT DATE: February 14, 1995

REMARKS: SSR Dated 1/30/95

LABORATORY NO.: GEO90064

Sample Description : Six (6) Jars Soil

Submitted By : Geotechnical Department
Attention: George Miller

Method of Test : ASTM D4972, ASTM D2974

Project:

PPG - Moorestown


Sample Identification

Results

	Soil pH (Standard Units)	Total Organic Carbon, %
SH-01 - SH-01/MW-10/0-2	5.8	1.84
SH-02 - SH-02/TP-11/0-2	2.7	52.28
SH-03 - SH-03/MW-09/2-4	4.3	2.24
SH-04 - SH-04/MW-07/1-3	5.3	1.75
SH-05 - SH-05/MW-07/14-15.5	5.0	6.14
SH-06 - SH-06/SB-07/0-2	3.5	4.00

Respectfully Submitted,

PROFESSIONAL SERVICE IND., INC.


Chris Mendoza, Level II
Chemistry Department Manager

2-Geotechnical Department
jcv

302667

APPENDIX D
SURVEYOR REPORT

302668

EPA REGION II
SCANNING TRACKING SHEET

DOC ID # 38786

DOC TITLE/SUBJECT:
SOIL BORING LOCATIONS
PAGE 1 OF 2

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EPA REGION II
SCANNING TRACKING SHEET

DOC ID # 38786

DOC TITLE/SUBJECT:
**CHART LISTINGS FOR SOIL BORING
LOCATIONS
PAGE 2 OF 2**

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APPENDIX E
SLUG TEST CALCULATION BRIEF

302671

BY <u>FRC</u> DATE <u>2-28-95</u>	McLAREN / HART	SHEET	<div></div>
CHK'D <u>1/1</u> DATE <u>4/4/95</u>		—1— OF —13	

SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC

CALCULATION BRIEF

SLUG TEST REPORT
PHASE II SITE INVESTIGATION
PULVERIZING SERVICES FACILITY
MOORESTOWN, NEW JERSEY

CONTENTS

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Description of Slug Testing Procedures	3
Screening of Slug Test Data	5
Selection of Analytical Mathematical Solution	7
Calculation of Aquifer Hydraulic Conductivity/Transmissivity	9
Justification of Analytical Method	12
Attachment 1 (Aqtesolv graphs, hermit data files)	13

302672

BY <u>FRC</u> DATE <u>2-28-95</u>	McLAREN / HART	SHEET	<div></div>
CHK'D <u>ALM</u> DATE <u>2-2-95</u>		<u>2</u> OF <u>13</u>	

SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC

REFERENCES

1. Comprehensive Guidelines for Conducting Geoscience Field Activities, Document No. 029, McLaren/Hart Environmental Engineering Corporation, September 1992.
2. Duffield, M. Glenn/James O. Rumbaugh III, 1989, AQTESOLV, Geraghty & Miller Modeling Group, Geraghty & Miller.
3. Fetter, C. W., 1988, Applied Hydrogeology, Merrill Publishing Company, Columbus, OH.
4. Bouwer, Herman and R. C. Rice, 1976, A slug test method for determining hydraulic conductivity of unconfined aquifers with completely or partially penetrating wells, Water Resources Research, v. 12, No. 3, pp. 423-428.
5. Kruseman, G. P. and N. A. de Ridder, 1989, Analysis and Evaluation of Pumping Test Data, ILRI, Publication 47, Netherlands.

SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC.

DESCRIPTION OF SLUG TESTING PROCEDURES

PURPOSE: To present a summary of the testing procedures and methods followed for the monitoring well slug testing.

METHODOLOGY: The slug test method, data collection, and data analysis are summarized for the testing of monitoring wells at the former Pulverizing Services Facility.

CONCLUSIONS: As presented in Table 1 (following):

TABLE 1

Monitoring Well	Static Water Elevation (ft-msl)	Total Depth (ft-msl)	Aquifer Saturated Thickness (ft)	Test Duration (min)	Hydraulic Conductivity, K (cm/sec)
MW-01	61.00	21.35	16.3	30	3.37×10^{-4}
MW-02	60.34	19.70	9.3	20	6.07×10^{-4}
MW-03	61.09	21.60	16.2	2.0	2.51×10^{-3}
MW-04	59.26	17.05	12.3	130	2.01×10^{-5}
MW-05	54.81	15.75	10.3	10	2.22×10^{-3}
MW-06	63.42	12.80	8.6	100	5.67×10^{-5}
MW-07	60.64	14.30	10.0	24	2.22×10^{-4}
MW-08	53.71	10.30	4.1	24	2.53×10^{-4}
MW-09	60.16	15.30	4.6	10	1.77×10^{-4}
MW-10	58.68	13.15	2.5	10	7.09×10^{-5}

302674

BY <u>ERC</u> DATE <u>2-28-95</u>	McLAREN / HART	SHEET	PAGE
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SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC

Slug Test Methodology

Slug testing is an inexpensive, nonpumping techniques to estimate hydraulic conductivity (k) or transmissivity (T) at a specific location in an aquifer. The basic principle of slug testing is to displace the water level in a well either by lowering it or raising it, and then monitoring the rate at which the water level recovers to its original static position. For the ten (10) monitoring wells tested, the "slug out" procedure was employed. This procedure involved lowering a bailer into a well then removing the groundwater to create displacement. The displacement was then monitored until the aquifer recovered to within 10% of its initial static level. This procedure follows the "Comprehensive Guidelines for Conducting Geoscience Field Activities" (reference 1).

Data Collection Methodology

Data collection for slug testing was accomplished using a 20-psi transducer and a 2-channel In-Situ data logger. The data logger was programmed to collect data on a logarithmic scale. The transducer was placed into the well near the well bottom and specific transducer information (linearity, scale, offset) was programmed in the data logger prior to testing. The bailer was then lowered into the well and the water level was permitted to stabilize. The stabilized water level was then referenced as a datum in the data logger. The data logger was then started, the slug pulled immediately, and the test was terminated when the water level recovered to within 10% of its referenced datum.

Data Analysis

The Bouwer and Rice Method (reference 4) was used in conjunction with Aqtesolv computer program (reference 2) to analyze the slug test data from the ten monitoring wells. Following slug testing, the data was downloaded to a diskette and then viewed on a PC. Data was screened and formatted for analysis using Aqtesolv.

302675

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SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC

SCREENING OF SLUG TEST DATA

PURPOSE: To compile and tabulate slug test information and data, and screen data for usability for subsequent hydraulic calculations.

PROCEDURE: Compile data logger files, and field notes; tabulate these notes (as necessary), and subsequently screen out unusable data.

CONCLUSIONS: Drawdown data from the transducers monitoring ten shallow wells are usable.

Barometric effects for the shallow aquifer were considered minimal, and therefore no barometric corrections were made to respective drawdown curves.

Data was screened and erroneous post-recovery data was omitted from analyses.

302676

BY ERC DATE 2-28-95
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McLAREN / HART

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SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC.

Slug Test Data Summarization

Table 2 summarizes the usability of data logger monitoring information:

TABLE 2

WELL	ZONE	TYPE	TOTAL TEST TIME	TEST TIME USED	NOTES
MW-01	Shallow/ Unconfined	Trans	62	30	Data Usable
MW-02	Shallow/ Unconfined	Trans	86	20	Data Usable
MW-03	Shallow/ Unconfined	Trans	10	2.0	Data Usable
MW-04	Shallow/ Unconfined	Trans	130	130	Data Usable
MW-05	Shallow/ Unconfined	Trans	12	10	Data Usable
MW-06	Shallow/ Unconfined	Trans	100	100	Data Usable
MW-07	Shallow/ Unconfined	Trans	38	24	Data Usable
MW-08	Shallow/ Unconfined	Trans	56	24	Data Usable
MW-09	Shallow/ Unconfined	Trans	52	10	Data Usable
MW-10	Shallow/ Unconfined	Trans	20	10	Data Usable

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SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC

SELECTION OF ANALYTICAL MATHEMATICAL SOLUTION

PURPOSE: To select an appropriate analytical technique for the estimation of aquifer parameters (ie. hydraulic conductivity and transmissivity).

METHODOLOGY: Determine proper technique to analyze data to estimate values of subsurface parameters (hydraulic conductivity and transmissivity).

CONCLUSIONS: Site-specific conditions are determined to be:

Shallow Aquifer: Unconfined,
 Unconsolidated materials
 Partial penetration effects negligible

Appropriate well hydraulic solutions to be used are:

- Bouwer and Rice solution (1976).

302678

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SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC

SITE-SPECIFIC CONDITIONS OBSERVED

Unconfined Aquifer:

- Observation of Phase I well logs, and newly installed piezometer and monitoring well logs (included as Appendix __) indicate a typical silty sand to silty sand and gravel sequence underlain by a tough, stiff clay.

Monitoring Wells:

- Observation of Phase I well logs and newly installed piezometers and monitoring well logs indicate that all wells are either fully or partially penetrating.
- Wells are assumed to experience no well losses during slug testing.
- Groundwater flow into the well is steady state.

302679

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SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
PULVERIZING SERVICES SITE
PPG INDUSTRIES, INC

CALCULATION OF AQUIFER HYDRAULIC CONDUCTIVITY/TRANSMISSIVITY

PURPOSE: To estimate aquifer parameter (ie. hydraulic conductivity (K), and transmissivity (T)) for the slug tests conducted at the former Pulverizing Services Facility.

METHODOLOGY: Use the Bouwer and Rice Solution for slug tests in conjunction with the computer program Aqtesolv and available site data (well logs) to develop the above estimates. Specifically, both the computer generated hydraulic conductivity estimates (from Aqtesolv) and the estimates based on visual curve-matching were utilized to calculate representative hydraulic parameters. Finally, a geometric mean was used to determine an appropriate site hydraulic conductivity average.

CONCLUSIONS: Average hydraulic conductivity = 2.45×10^{-4} cm/sec;
Average transmissivity = 42.9 gpd/ft.

0.1 m

0.00

3600

302680

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PPG INDUSTRIES, INC

Slug Test Data Summarization

Table 3 summarizes the monitoring well information and aquifer parameters:

TABLE 3

Well	Radius of Well R _w (ft)	Radius of Well Casing R _c (ft)	Aquifer Saturated Thickness (ft)	T (gpd/ft)	k (cm/sec)
MW-01	0.417	0.167	16.3	117	3.37 x 10 ⁻⁴
MW-02	0.417	0.167	9.3	120	6.07 x 10 ⁻⁴
MW-03	0.417	0.167	16.2	862	2.51 x 10 ⁻³
MW-04	0.417	0.167	12.3	5.24	2.01 x 10 ⁻⁵
MW-05	0.417	0.167	10.3	485	2.22 x 10 ⁻³
MW-06	0.417	0.167	8.6	10.3	5.67 x 10 ⁻⁵
MW-07	0.333	0.083	10.0	47.1	2.22 x 10 ⁻⁴
MW-08	0.333	0.083	4.1	22.0	2.53 x 10 ⁻⁴
MW-09	0.333	0.083	4.6	17.3	1.77 x 10 ⁻⁴
MW-10	0.333	0.083	2.5	3.76	7.09 x 10 ⁻⁵

302681

SUBJECT SLUG TEST REPORT JOB NO. 09-0801460
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PPG INDUSTRIES, INC.

Slug Test Method for Unconfined Aquifers

Hydraulic conductivity was determined by utilizing the Aqtesolv program (reference 2) which utilizes the Bouwer and Rice method (reference 4). Aqtesolv program determines K from the following equation (reference 2, p. 105):

$$\ln s_o - \ln s_t = \frac{2 K L t}{r_c^2 \ln (r_e / r_w)}$$

where:

- s_o = initial drawdown in well due to instantaneous removal of water from well (ft)
- s_t = drawdown in well at time t (ft)
- L = length of well screen (ft)
- r_c = radius of well casing (ft)
- $\ln(r_e/r_w)$ = empirical shape factor (reference 4)
- r_e = equivalent radius over which well loss occurs (ft)
- r_w = radius of well (including gravel pack) (ft)
- H = static height of water in well (ft)
- b = saturated thickness of aquifer (ft).

Transmissivity is calculated from the following equation (reference 3, p. 105):

$$T = Kb$$

where:

- T = transmissivity (gpd/ft)
- K = hydraulic conductivity (gpd/ft²)
- b = saturated thickness of aquifer (ft).

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CHK'D JIM	DATE 2-4-95				
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PULVERIZING SERVICES SITE					
PPG INDUSTRIES, INC					

JUSTIFICATION OF ANALYTICAL METHOD

PURPOSE:

To justify the application of the Bouwer and Rice method (which is based on Theim's equation) used for the evaluation of the slug test data to determine aquifer hydraulic conductivity.

PROCEDURE:

The use of the Bouwer and Rice method is appropriate when several assumptions and conditions are satisfied.

CONCLUSIONS:

The Bouwer and Rice method is appropriate when the following are satisfied (from reference 5, p. 246):

- aquifer is unconfined and has an apparently infinite aerial extent;
- aquifer is homogeneous, isotropic, and of uniform thickness over the entire area influenced by the slug test;
- prior to the test, the water table is nearly horizontal over the entire area that will be influenced by the test;
- head in the well is lowered instantaneously at $t = 0$; the drawdown in the water table around the well is negligible; there is no flow above the water table;
- inertia of the water column in the well and the linear and non-linear well losses are negligible;
- well either partially or fully penetrates the saturated thickness of the aquifer;
- well diameter is finite; hence storage in the well cannot be neglected;
- the flow to the well is in a steady state.

The fulfilling of the above assumptions/conditions, validates the use of the Bouwer and Rice method for the determination of hydraulic conductivity of the monitoring wells.

302683

BY <u>ERC</u> -- DATE <u>2-28-95</u> --	McLAREN / HART	SHEET	<div></div>
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SUBJECT SLUG TEST REPORT ----- JOB NO. 09-0801460 -----
----- PULVERIZING SERVICES SITE -----
----- PPG INDUSTRIES INC -----

ATTACHMENT 1

A Q T E S O L V R E S U L T S
Version 1.10

09:27:47

```
Data set..... slugmw1.txt
Data set title.... MW-01 SLUG TEST DATA
```

No. of data points.....	177		
Radius of well casing.....	0.167		
Radius of well.....	0.417		
Aquifer saturated thickness.....	16.3		
Well screen length.....	10		
Static height of water in well.....	16.3		
Log(Re/Rw).....	2.671		
A, B, C.....	0.000,	0.000,	1.782

Power-Rice (Unconfined Aquifer Slug Test)

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
K =	6.2467E-004 +/-	1.9037E-006
y0 =	2.0674E+000 +/-	1.3617E-003

```
residual = calculated - observed
weighted residual = residual * weight
```

Number of residuals.....	177
Number of estimated parameters....	2
Degrees of freedom.....	175
Residual mean.....	0.0004241
Residual standard deviation.....	0.01307
Residual variance.....	0.0001709

302686

Model Residuals:

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

0.0633	2.119	2.0455	0.073473	1
0.0666	2.106	2.0444	0.061605	1
0.07	2.087	2.0432	0.04377	1
0.0733	2.081	2.0421	0.038901	1
0.0766	2.084	2.041	0.043031	1
0.08	2.068	2.0398	0.028194	1
0.0833	2.059	2.0387	0.020323	1
0.0866	2.053	2.0375	0.015451	1
0.09	2.05	2.0364	0.013612	1
0.0933	2.046	2.0353	0.010739	1
0.0966	2.043	2.0341	0.0088651	1
0.1	2.04	2.033	0.0070247	1
0.1033	2.04	2.0319	0.0081495	1
0.1066	2.037	2.0307	0.0062738	1
0.11	2.034	2.0296	0.0044314	1
0.1133	2.034	2.0284	0.0055543	1
0.1166	2.031	2.0273	0.0036767	1
0.12	2.028	2.0262	0.0018324	1
0.1233	2.028	2.025	0.0029534	1
0.1266	2.025	2.0239	0.0010739	1
0.13	2.021	2.0228	-0.0017724	1
0.1333	2.021	2.0217	-0.00065316	1
0.1366	2.018	2.0205	-0.0025346	1
0.14	2.018	2.0194	-0.0013828	1
0.1433	2.018	2.0183	-0.00026545	1
0.1466	2.018	2.0171	0.00085125	1
0.15	2.015	2.016	-0.00099886	1
0.1533	2.012	2.0149	-0.0028834	1
0.1566	2.012	2.0138	-0.0017686	1
0.16	2.012	2.0126	-0.00062062	1
0.1633	2.009	2.0115	-0.002507	1
0.1666	2.009	2.0104	-0.0013941	1
0.17	2.006	2.0092	-0.003248	1
0.1733	2.006	2.0081	-0.0021363	1
0.1766	2.006	2.007	-0.0010252	1
0.18	2.003	2.0059	-0.0028811	1
0.1833	2.003	2.0048	-0.0017713	1
0.1866	1.999	2.0037	-0.004662	1
0.19	1.999	2.0025	-0.0035198	1
0.1933	1.996	2.0014	-0.0054118	1
0.1966	1.996	2.0003	-0.0043045	1
0.2	1.996	1.9992	-0.0031642	1
0.2033	1.996	1.9981	-0.0020581	1
0.2066	1.993	1.997	-0.0039525	1
0.21	1.993	1.9958	-0.0028142	1
0.2133	1.99	1.9947	-0.0047099	1
0.2166	1.99	1.9936	-0.0036062	1
0.22	1.987	1.9925	-0.0054697	1
0.2233	1.987	1.9914	-0.0043673	1
0.2266	1.987	1.9903	-0.0032655	1
0.23	1.984	1.9891	-0.0051309	1
0.2333	1.984	1.988	-0.0040304	1
0.2366	1.981	1.9869	-0.0059304	1
0.24	1.981	1.9858	-0.0047977	1
0.2433	1.981	1.9847	-0.003699	1
0.2466	1.978	1.9836	-0.0056009	1
0.25	1.978	1.9825	-0.0044701	1
0.2533	1.974	1.9814	-0.0073732	1
0.2566	1.974	1.9803	-0.0062769	1

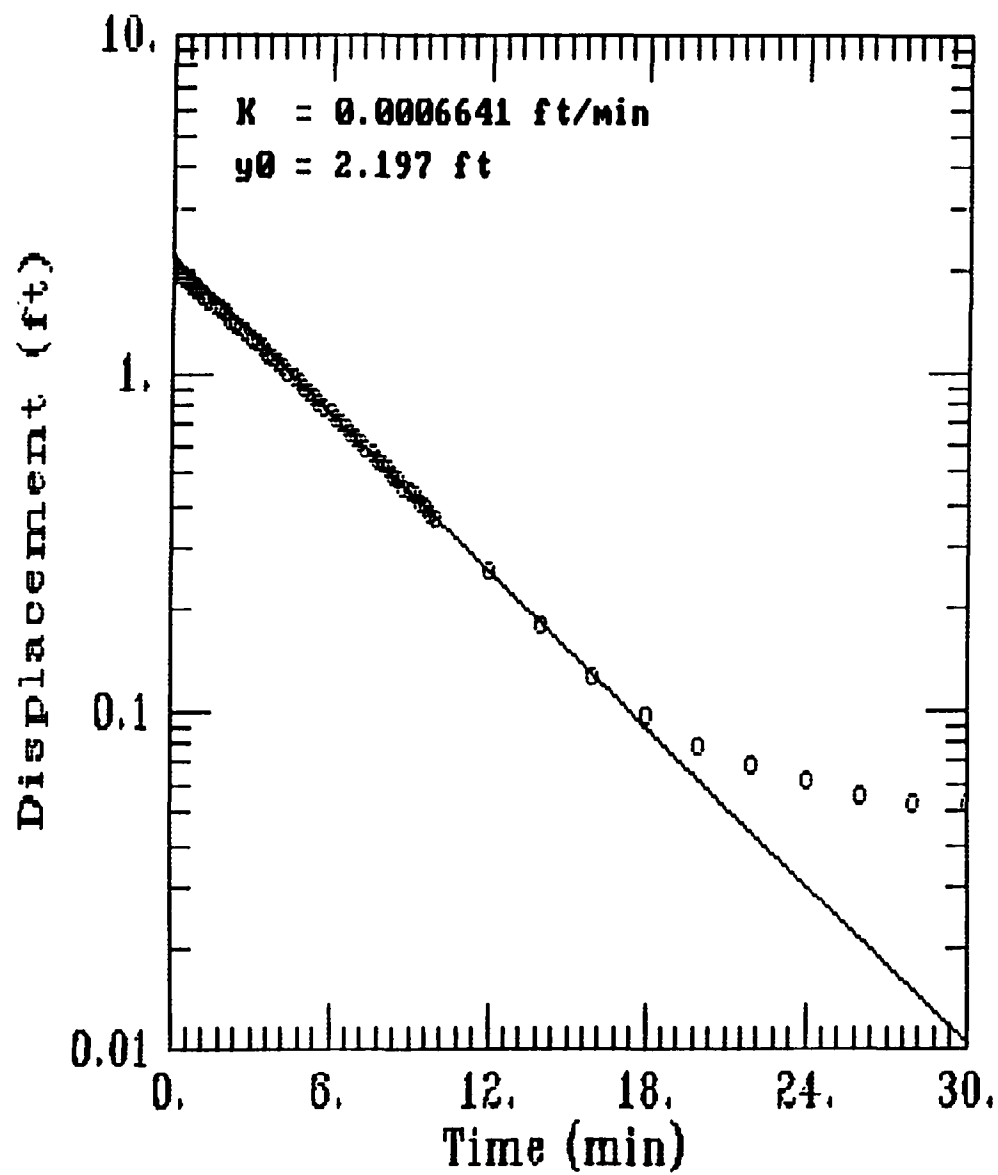
0.26	1.974	1.9791	-0.005148	1
0.2633	1.971	1.9781	-0.007053	1
0.2666	1.971	1.977	-0.0059585	1
0.27	1.971	1.9758	-0.0048315	1
0.2733	1.968	1.9747	-0.0067383	1
0.2766	1.968	1.9736	-0.0056457	1
0.28	1.965	1.9725	-0.0075206	1
0.2833	1.965	1.9714	-0.0064292	1
0.2866	1.965	1.9703	-0.0053384	1
0.29	1.962	1.9692	-0.0072152	1
0.2933	1.962	1.9681	-0.0061257	1
0.2966	1.959	1.967	-0.0080367	1
0.3	1.959	1.9659	-0.0069154	1
0.3033	1.959	1.9648	-0.0058277	1
0.3066	1.959	1.9637	-0.0047405	1
0.31	1.956	1.9626	-0.0066211	1
0.3133	1.956	1.9615	-0.0055352	1
0.3166	1.952	1.9604	-0.0084499	1
0.32	1.952	1.9593	-0.0073323	1
0.3233	1.952	1.9582	-0.0062482	1
0.3266	1.949	1.9572	-0.0081647	1
0.33	1.949	1.956	-0.007049	1
0.3333	1.949	1.955	-0.0059667	1
0.35	1.943	1.9495	-0.0064989	1
0.3666	1.937	1.9441	-0.007079	1
0.3833	1.931	1.9386	-0.0076417	1
0.4	1.924	1.9332	-0.0092196	1
0.4166	1.918	1.9278	-0.0098449	1
0.4333	1.915	1.9225	-0.007453	1
0.45	1.909	1.9171	-0.0080762	1
0.4666	1.902	1.9117	-0.0097464	1
0.4833	1.896	1.9064	-0.010399	1
0.5	1.893	1.9011	-0.0080675	1
0.5166	1.887	1.8958	-0.0087823	1
0.5333	1.883	1.8905	-0.00748	1
0.55	1.877	1.8852	-0.0081926	1
0.5666	1.871	1.88	-0.0089515	1
0.5833	1.868	1.8747	-0.0066935	1
0.6	1.865	1.8695	-0.0044502	1
0.6166	1.858	1.8643	-0.0062529	1
0.6333	1.852	1.859	-0.0070388	1
0.65	1.846	1.8538	-0.0078393	1
0.6666	1.843	1.8487	-0.0056854	1
0.6833	1.836	1.8435	-0.0075148	1
0.7	1.833	1.8384	-0.0053588	1
0.7166	1.827	1.8332	-0.0062478	1
0.7333	1.824	1.8281	-0.0041205	1
0.75	1.818	1.823	-0.0050075	1
0.7666	1.815	1.8179	-0.0029392	1
0.7833	1.808	1.8129	-0.0048547	1
0.8	1.802	1.8078	-0.0057844	1
0.8166	1.799	1.8028	-0.0037585	1
0.8333	1.793	1.7977	-0.0047164	1
0.85	1.789	1.7927	-0.0036884	1
0.8666	1.783	1.7877	-0.0047045	1
0.8833	1.78	1.7827	-0.0027045	1
0.9	1.774	1.7777	-0.0037185	1
0.9166	1.771	1.7728	-0.0017762	1
0.9333	1.764	1.7678	-0.0038179	1
0.95	1.761	1.7629	-0.0018736	1

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0.9833	1.752	1.7531	-0.0010557	1
1	1.746	1.7482	-0.0021526	1
1.2	1.677	1.6905	-0.013488	1
1.4	1.626	1.6347	-0.0087253	1
1.6	1.579	1.5808	-0.0018021	1
1.8	1.529	1.5287	0.00034234	1
2	1.485	1.4782	0.0067668	1
2.2	1.442	1.4295	0.012528	1
2.4	1.395	1.3823	0.012681	1
2.6	1.354	1.3367	0.017278	1
2.8	1.31	1.2926	0.017371	1
3	1.263	1.25	0.01301	1
3.2	1.222	1.2088	0.013242	1
3.4	1.181	1.1689	0.012114	1
3.6	1.144	1.1303	0.013671	1
3.8	1.106	1.093	0.012956	1
4	1.069	1.057	0.012012	1
4.2	1.034	1.0221	0.011878	1
4.4	1.003	0.98841	0.014593	1
4.6	0.971	0.9558	0.015197	1
4.8	0.934	0.92427	0.0097253	1
5	0.902	0.89379	0.0082135	1
5.2	0.871	0.8643	0.006696	1
5.4	0.843	0.83579	0.007206	1
5.6	0.815	0.80822	0.0067756	1
5.8	0.783	0.78156	0.0014358	1
6	0.761	0.75578	0.0052165	1
6.2	0.733	0.73085	0.0021469	1
6.4	0.708	0.70675	0.0012548	1
6.6	0.686	0.68343	0.0025676	1
6.8	0.664	0.66089	0.0031114	1
7	0.639	0.63909	-8.8499E-005	1
7.2	0.62	0.61801	0.0019925	1
7.4	0.595	0.59762	-0.0026218	1
7.6	0.576	0.57791	-0.0019086	1
7.8	0.554	0.55885	-0.0048457	1
8	0.539	0.54041	-0.0014115	1
8.2	0.514	0.52259	-0.0085855	1
8.4	0.498	0.50535	-0.0073474	1
8.6	0.479	0.48868	-0.009678	1
8.8	0.46	0.47256	-0.012558	1
9	0.448	0.45697	-0.0089706	1
9.2	0.429	0.4419	-0.012897	1
9.4	0.413	0.42732	-0.01432	1
9.6	0.398	0.41322	-0.015225	1
9.8	0.385	0.39959	-0.014594	1
10	0.373	0.38641	-0.013413	1
12	0.257	0.2763	-0.019299	1
14	0.178	0.19756	-0.019563	1
16	0.125	0.14126	-0.016265	1
18	0.097	0.10101	-0.0040091	1
20	0.078	0.072225	0.0057749	1
22	0.069	0.051643	0.017357	1
24	0.062	0.036927	0.025073	1
26	0.056	0.026404	0.029596	1
28	0.053	0.01888	0.03412	1
30	0.053	0.0135	0.0395	1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 104

y0 = 2.1969E+000

MW-01 SLUG TEST DATA



302691

A Q T E S O L V R E S U L T S
Version 1.10

09:46:49

TEST DESCRIPTION

```
Data set..... slugmw2.txt
Data set title.... MW-02 SLUG TEST RESULTS
```

Knowns and Constants:

No. of data points.....	171		
Radius of well casing.....	0.167		
Radius of well.....	0.417		
Aquifer saturated thickness.....	9.34		
Well screen length.....	5		
Static height of water in well.....	9.34		
Log(Re/Rw).....	2.132		
A, B, C.....	0.000,	0.000,	1.381

ANALYTICAL METHOD

Power-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
K =	1.2619E-003 +/-	2.0438E-005
y0 =	2.2521E+000 +/-	8.0654E-003

ANALYSIS OF MODEL RESIDUALS

```
residual = calculated - observed
weighted residual = residual * weight
```

Weighted Residual Statistics:

Number of residuals.....	171
Number of estimated parameters....	2
Degrees of freedom.....	169
Residual mean.....	0.01137
Residual standard deviation.....	0.07393
Residual variance.....	0.005466

Model Residuals:

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

0.0666	2.318	2.2205	0.097504	1
0.07	2.302	2.2189	0.083106	1
0.0733	2.283	2.2173	0.065659	1
0.0766	2.274	2.2158	0.058211	1
0.08	2.265	2.2142	0.050809	1
0.0833	2.262	2.2126	0.049359	1
0.0866	2.252	2.2111	0.040908	1
0.09	2.255	2.2095	0.045503	1
0.0933	2.252	2.208	0.044049	1
0.0966	2.249	2.2064	0.042595	1
0.1	2.246	2.2048	0.041186	1
0.1033	2.243	2.2033	0.039729	1
0.1066	2.243	2.2017	0.041272	1
0.11	2.24	2.2001	0.039859	1
0.1133	2.24	2.1986	0.041399	1
0.1166	2.237	2.1971	0.039938	1
0.12	2.233	2.1955	0.037523	1
0.1233	2.23	2.1939	0.03606	1
0.1266	2.23	2.1924	0.037596	1
0.13	2.227	2.1908	0.036177	1
0.1333	2.224	2.1893	0.03471	1
0.1366	2.224	2.1878	0.036243	1
0.14	2.221	2.1862	0.034821	1
0.1433	2.218	2.1846	0.033351	1
0.1466	2.215	2.1831	0.03188	1
0.15	2.215	2.1815	0.033455	1
0.1533	2.211	2.18	0.030982	1
0.1566	2.208	2.1785	0.029508	1
0.16	2.208	2.1769	0.031079	1
0.1633	2.205	2.1754	0.029602	1
0.1666	2.202	2.1739	0.028125	1
0.17	2.202	2.1723	0.029693	1
0.1733	2.199	2.1708	0.028214	1
0.1766	2.196	2.1693	0.026733	1
0.18	2.196	2.1677	0.028298	1
0.1833	2.193	2.1662	0.026815	1
0.1866	2.19	2.1647	0.025331	1
0.19	2.19	2.1631	0.026892	1
0.1933	2.186	2.1616	0.024407	1
0.1966	2.183	2.1601	0.02292	1
0.2	2.183	2.1585	0.024478	1
0.2033	2.18	2.157	0.022988	1
0.2066	2.177	2.1555	0.021498	1
0.21	2.177	2.1539	0.023053	1
0.2133	2.174	2.1524	0.021561	1
0.2166	2.171	2.1509	0.020067	1
0.22	2.171	2.1494	0.021619	1
0.2233	2.168	2.1479	0.020123	1
0.2266	2.164	2.1464	0.017627	1
0.23	2.164	2.1448	0.019175	1
0.2333	2.161	2.1433	0.017676	1
0.2366	2.158	2.1418	0.016176	1
0.24	2.158	2.1403	0.017721	1
0.2433	2.155	2.1388	0.016219	1
0.2466	2.152	2.1373	0.014716	1
0.25	2.152	2.1357	0.016258	1
0.2533	2.149	2.1342	0.014753	1
0.2566	2.146	2.1328	0.013246	1
0.26	2.143	2.1312	0.011785	1

302694

0.2633	2.143	2.1297	0.013276	1
0.2666	2.139	2.1282	0.010767	1
0.27	2.136	2.1267	0.0093021	1
0.2733	2.136	2.1252	0.010791	1
0.2766	2.133	2.1237	0.0092784	1
0.28	2.133	2.1222	0.01081	1
0.2833	2.13	2.1207	0.0092955	1
0.2866	2.127	2.1192	0.00778	1
0.29	2.127	2.1177	0.0093083	1
0.2933	2.124	2.1162	0.0077907	1
0.2966	2.121	2.1147	0.006272	1
0.3	2.121	2.1132	0.0077971	1
0.3033	2.117	2.1117	0.0052764	1
0.3066	2.117	2.1102	0.0067545	1
0.31	2.114	2.1087	0.0052764	1
0.3133	2.111	2.1072	0.0037525	1
0.3166	2.111	2.1058	0.0052276	1
0.32	2.108	2.1043	0.0037462	1
0.3233	2.105	2.1028	0.0022192	1
0.3266	2.105	2.1013	0.0036911	1
0.33	2.102	2.0998	0.0022066	1
0.3333	2.102	2.0983	0.0036764	1
0.35	2.092	2.0909	0.0010989	1
0.3666	2.08	2.0835	-0.0035491	1
0.3833	2.07	2.0762	-0.0061789	1
0.4	2.058	2.0688	-0.010835	1
0.4166	2.049	2.0616	-0.01256	1
0.4333	2.039	2.0543	-0.015268	1
0.45	2.03	2.047	-0.017001	1
0.4666	2.02	2.0398	-0.019804	1
0.4833	2.014	2.0326	-0.018588	1
0.5	2.002	2.0254	-0.023398	1
0.5166	1.992	2.0183	-0.026276	1
0.5333	1.986	2.0111	-0.025137	1
0.55	1.976	2.004	-0.028023	1
0.5666	1.961	1.997	-0.035977	1
0.5833	1.955	1.9899	-0.034913	1
0.6	1.945	1.9829	-0.037874	1
0.6166	1.939	1.9759	-0.036901	1
0.6333	1.933	1.9689	-0.035912	1
0.65	1.923	1.9619	-0.038947	1
0.6666	1.914	1.955	-0.041049	1
0.6833	1.904	1.9481	-0.044133	1
0.7	1.895	1.9412	-0.046242	1
0.7166	1.889	1.9344	-0.045416	1
0.7333	1.879	1.9276	-0.048573	1
0.75	1.873	1.9208	-0.047755	1
0.7666	1.864	1.914	-0.050001	1
0.7833	1.857	1.9072	-0.050231	1
0.8	1.848	1.9005	-0.052484	1
0.8166	1.842	1.8938	-0.051802	1
0.8333	1.829	1.8871	-0.058103	1
0.85	1.826	1.8804	-0.054427	1
0.8666	1.817	1.8738	-0.056815	1
0.8833	1.81	1.8672	-0.057187	1
0.9	1.801	1.8606	-0.059582	1
0.9166	1.792	1.854	-0.06204	1
0.9333	1.785	1.8475	-0.062482	1
0.95	1.776	1.8409	-0.064946	1
0.9666	1.77	1.8345	-0.064473	1

0.9833	1.763	1.828	-0.064984	1
1	1.757	1.8215	-0.064518	1
1.2	1.648	1.7458	-0.097833	1
1.4	1.563	1.6733	-0.11029	1
1.6	1.491	1.6038	-0.11277	1
1.8	1.419	1.5371	-0.11813	1
2	1.353	1.4733	-0.12026	1
2.2	1.294	1.412	-0.11805	1
2.4	1.237	1.3534	-0.11637	1
2.6	1.184	1.2971	-0.11314	1
2.8	1.131	1.2432	-0.11224	1
3	1.084	1.1916	-0.10759	1
3.2	1.043	1.1421	-0.099076	1
3.4	1.002	1.0946	-0.092622	1
3.6	0.961	1.0491	-0.08814	1
3.8	0.924	1.0055	-0.081547	1
4	0.892	0.96377	-0.071766	1
4.2	0.858	0.92372	-0.065721	1
4.4	0.83	0.88534	-0.05534	1
4.6	0.802	0.84855	-0.046554	1
4.8	0.773	0.8133	-0.040296	1
5	0.748	0.7795	-0.031503	1
5.2	0.726	0.74711	-0.021114	1
5.4	0.704	0.71607	-0.012071	1
5.6	0.683	0.68632	-0.0033182	1
5.8	0.664	0.6578	0.0061987	1
6	0.642	0.63047	0.011531	1
6.2	0.626	0.60427	0.021727	1
6.4	0.607	0.57917	0.027835	1
6.6	0.595	0.5551	0.0399	1
6.8	0.579	0.53204	0.046964	1
7	0.567	0.50993	0.057071	1
7.2	0.554	0.48874	0.065258	1
7.4	0.542	0.46843	0.073566	1
7.6	0.529	0.44897	0.08003	1
7.8	0.516	0.43032	0.085685	1
8	0.507	0.41244	0.094564	1
8.2	0.495	0.3953	0.099701	1
8.4	0.485	0.37887	0.10613	1
8.6	0.479	0.36313	0.11587	1
8.8	0.473	0.34804	0.12496	1
9	0.463	0.33358	0.12942	1
9.2	0.457	0.31972	0.13728	1
9.4	0.448	0.30644	0.14156	1
9.6	0.444	0.2937	0.1503	1
9.8	0.438	0.2815	0.1565	1
10	0.432	0.2698	0.1622	1
12	0.391	0.1765	0.2145	1
14	0.369	0.11546	0.25354	1
16	0.354	0.075531	0.27847	1
18	0.347	0.04941	0.29759	1
20	0.341	0.032323	0.30868	1

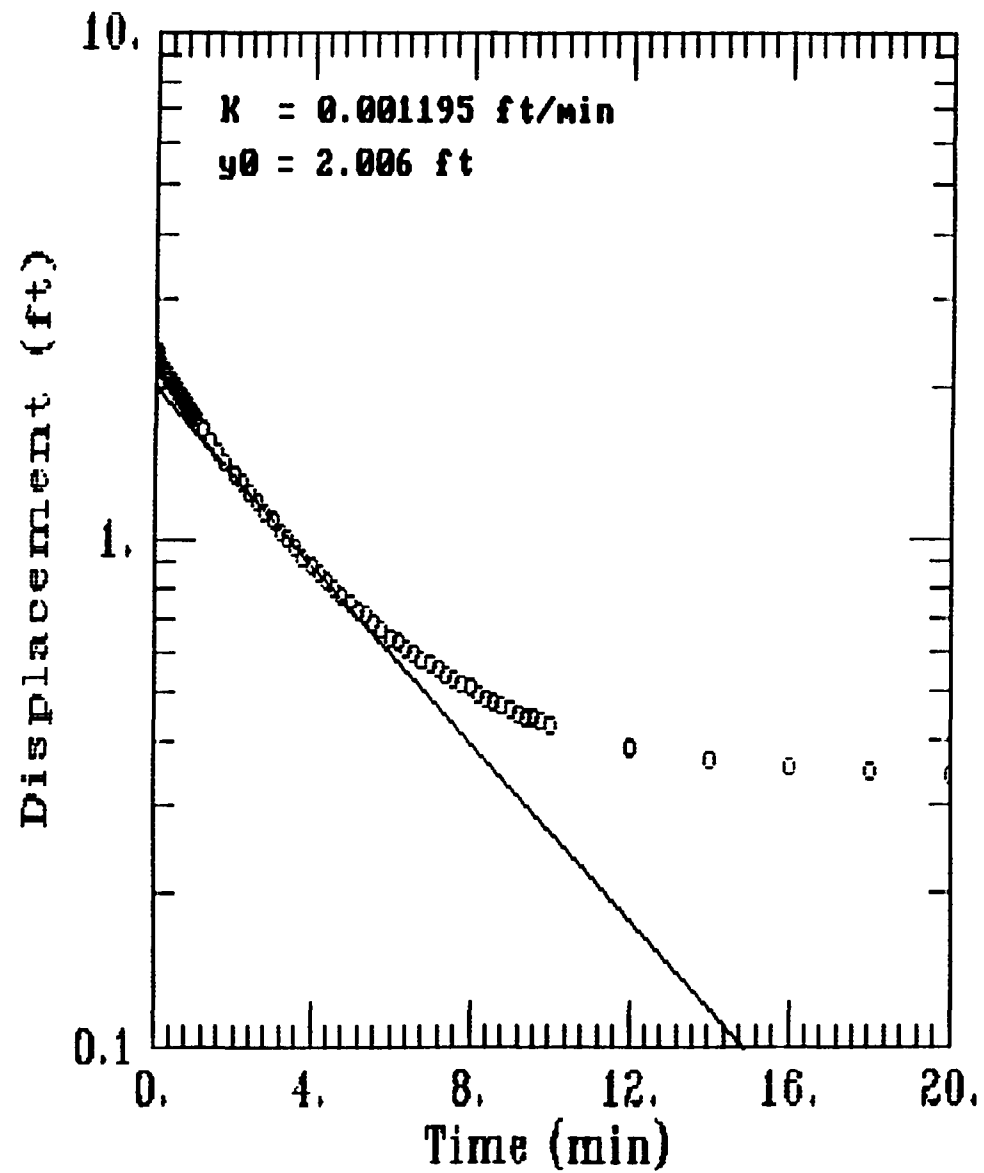
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RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

302696

MW-02 SLUG TEST RESULTS



302697

[illegible]

[illegible]

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Glenn M. Duffield
and
James O. Rumbaugh, III

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- o confined aquifers, unconfined aquifers, and leaky aquifers
- o pumping tests, injection tests, recovery tests, and slug tests

- o Interactive, menu-driven program design
- o Nonlinear least-squares estimation of aquifer coefficients
- o Statistical analysis of results
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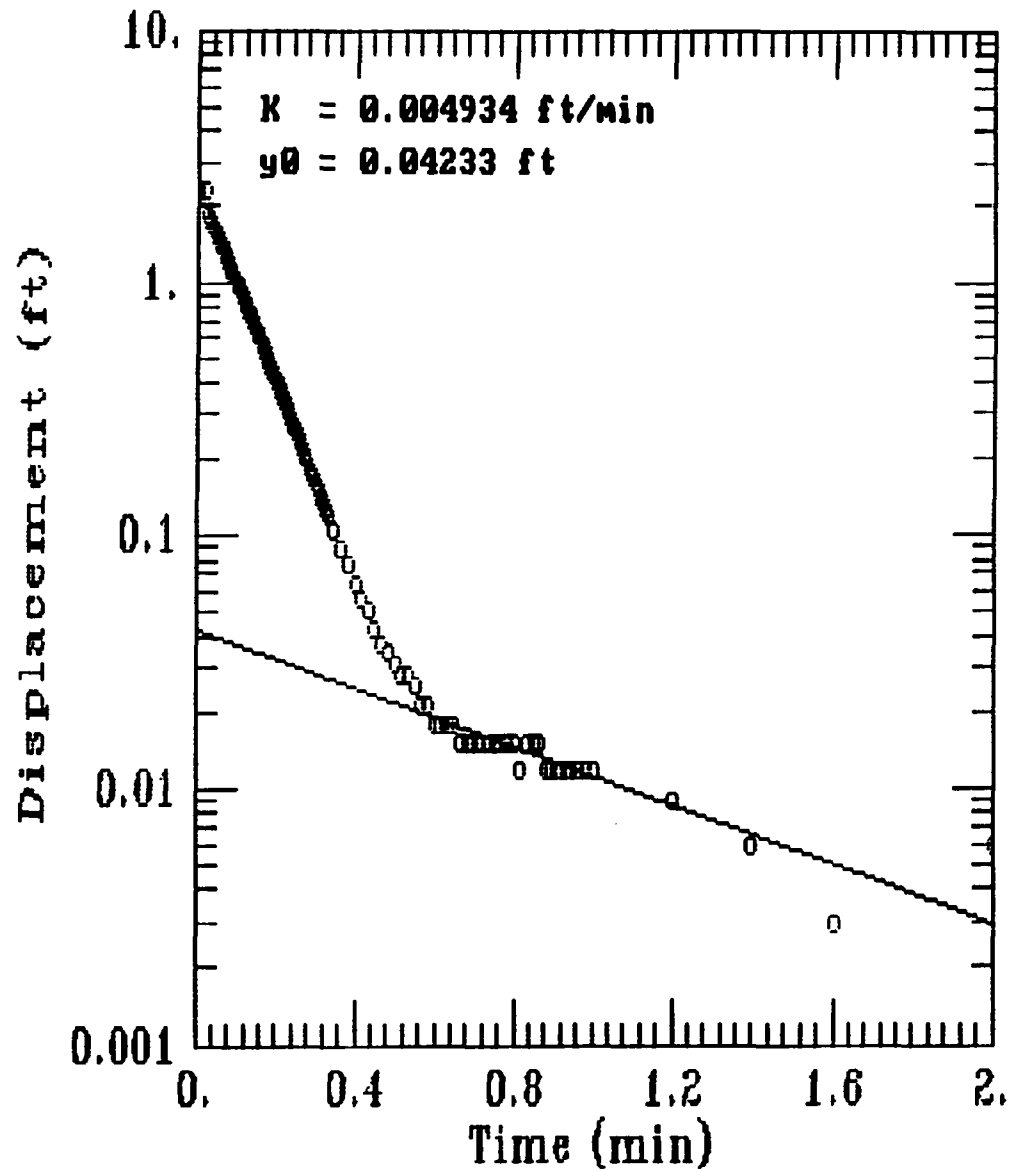
[illegible]

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

0.0233	2.306	1.974	0.33203	1
0.0266	1.805	1.9157	-0.11069	1
0.03	1.805	1.8574	-0.052436	1
0.0333	1.761	1.8026	-0.041591	1
0.0366	1.72	1.7494	-0.029366	1
0.04	1.673	1.6962	-0.023172	1
0.0433	1.632	1.6461	-0.014089	1
0.0466	1.576	1.5975	-0.021485	1
0.05	1.523	1.5489	-0.025909	1
0.0533	1.469	1.5032	-0.034174	1
0.0566	1.441	1.4588	-0.01779	1
0.06	1.407	1.4144	-0.007431	1
0.0633	1.372	1.3727	-0.0006671	1
0.0666	1.328	1.3321	-0.0041364	1
0.07	1.281	1.2916	-0.010629	1
0.0733	1.231	1.2535	-0.022491	1
0.0766	1.209	1.2165	-0.0074791	1
0.08	1.172	1.1795	-0.0074885	1
0.0833	1.137	1.1447	-0.0076617	1
0.0866	1.103	1.1109	-0.0078634	1
0.09	1.071	1.0771	-0.0060842	1
0.0933	1.04	1.0453	-0.0052812	1
0.0966	1.012	1.0144	-0.0024172	1
0.1	0.984	0.98357	0.00042916	1
0.1033	0.955	0.95453	0.00047103	1
0.1066	0.927	0.92634	0.00065537	1
0.11	0.902	0.89818	0.0038236	1
0.1133	0.874	0.87166	0.0023441	1
0.1166	0.852	0.84592	0.0060814	1
0.12	0.827	0.8202	0.0068041	1
0.1233	0.802	0.79598	0.006022	1
0.1266	0.78	0.77248	0.0075248	1
0.13	0.755	0.74899	0.0060142	1
0.1333	0.733	0.72687	0.0061295	1
0.1366	0.711	0.70541	0.0055918	1
0.14	0.692	0.68396	0.0080418	1
0.1433	0.67	0.66376	0.006237	1
0.1466	0.651	0.64416	0.006836	1
0.15	0.633	0.62458	0.0084237	1
0.1533	0.614	0.60613	0.0078655	1
0.1566	0.595	0.58824	0.0067628	1
0.16	0.576	0.57035	0.00565	1
0.1633	0.557	0.55351	0.0034907	1
0.1666	0.542	0.53717	0.0048341	1
0.17	0.526	0.52083	0.0051682	1
0.1733	0.51	0.50545	0.0045468	1
0.1766	0.495	0.49053	0.0044713	1
0.18	0.479	0.47561	0.0033873	1
0.1833	0.467	0.46157	0.0054307	1
0.1866	0.451	0.44794	0.0030595	1
0.19	0.438	0.43432	0.0036804	1
0.1933	0.426	0.4215	0.0045046	1
0.1966	0.41	0.40905	0.00095005	1
0.2	0.401	0.39661	0.0043884	1
0.2033	0.388	0.3849	0.0030992	1
0.2066	0.376	0.37354	0.0024641	1
0.21	0.363	0.36218	0.0008226	1
0.2133	0.354	0.35148	0.0025166	1
0.2166	0.341	0.34111	-0.00010516	1

0.22	0.332	0.33073	0.0012672	1
0.2233	0.322	0.32097	0.0010327	1
0.2266	0.313	0.31149	0.0015099	1
0.23	0.304	0.30202	0.0019817	1
0.2333	0.294	0.2931	0.00089936	1
0.2366	0.285	0.28445	0.00055373	1
0.24	0.275	0.2758	-0.00079683	1
0.2433	0.266	0.26765	-0.0016534	1
0.2466	0.26	0.25975	0.00024961	1
0.25	0.253	0.25185	0.0011481	1
0.2533	0.244	0.24442	-0.00041548	1
0.2566	0.238	0.2372	0.00080137	1
0.26	0.231	0.22999	0.0010141	1
0.2633	0.222	0.2232	-0.0011951	1
0.2666	0.216	0.2166	-0.00060484	1
0.27	0.21	0.21002	-1.8324E-005	1
0.2733	0.203	0.20382	-0.00081712	1
0.2766	0.197	0.1978	-0.00079902	1
0.28	0.191	0.19178	-0.00078435	1
0.2833	0.184	0.18612	-0.0021215	1
0.2866	0.181	0.18063	0.00037407	1
0.29	0.175	0.17513	-0.00013346	1
0.2933	0.169	0.16996	-0.0009623	1
0.2966	0.166	0.16494	0.0010562	1
0.3	0.159	0.15993	-0.00092822	1
0.3033	0.156	0.15521	0.00079397	1
0.3066	0.153	0.15062	0.0023767	1
0.31	0.147	0.14604	0.00095689	1
0.3133	0.144	0.14173	0.0022691	1
0.3166	0.137	0.13755	-0.00054602	1
0.32	0.134	0.13336	0.00063648	1
0.3233	0.131	0.12943	0.0015743	1
0.3266	0.128	0.1256	0.0023958	1
0.33	0.125	0.12178	0.0032152	1
0.3333	0.119	0.11819	0.00081115	1
0.35	0.103	0.10156	0.0014441	1
0.3666	0.087	0.087343	-0.00034296	1
0.3833	0.075	0.075051	-5.0979E-005	1
0.4	0.065	0.064489	0.00051112	1
0.4166	0.056	0.055464	0.00053644	1
0.4333	0.05	0.047658	0.002342	1
0.45	0.043	0.040951	0.002049	1
0.4666	0.037	0.03522	0.0017801	1
0.4833	0.034	0.030263	0.0037367	1
0.5	0.031	0.026004	0.0049957	1
0.5166	0.028	0.022365	0.0056351	1
0.5333	0.028	0.019217	0.0087825	1
0.55	0.025	0.016513	0.0084871	1
0.5666	0.021	0.014202	0.0067981	1
0.5833	0.021	0.012203	0.0087967	1
0.6	0.018	0.010486	0.0075141	1
0.6166	0.018	0.0090184	0.0089816	1
0.6333	0.018	0.0077492	0.010251	1
0.65	0.018	0.0066586	0.011341	1
0.6666	0.015	0.0057267	0.0092733	1
0.6833	0.015	0.0049208	0.010079	1
0.7	0.015	0.0042283	0.010772	1
0.7166	0.015	0.0036365	0.011363	1
0.7333	0.015	0.0031248	0.011875	1
0.75				

MW-03 SLUG TEST DATA



302704

[illegible]

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- o confined aquifers, unconfined aquifers, and leaky aquifers
- o pumping tests, injection tests, recovery tests, and slug tests

- o Interactive, menu-driven program design
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[illegible]

0.02	1.968	1.7457	0.22227	1
0.0233	1.936	1.7457	0.19034	1
0.0266	1.927	1.7456	0.18142	1
0.03	1.911	1.7455	0.1655	1
0.0333	1.908	1.7454	0.16257	1
0.0366	1.899	1.7453	0.15365	1
0.04	1.886	1.7453	0.14073	1
0.0433	1.864	1.7452	0.11881	1
0.0466	1.864	1.7451	0.11888	1
0.05	1.82	1.745	0.07496	1
0.0533	1.839	1.745	0.094036	1
0.0566	1.849	1.7449	0.10411	1
0.06	1.842	1.7448	0.097191	1
0.0633	1.833	1.7447	0.088267	1
0.0666	1.833	1.7447	0.088343	1
0.07	1.83	1.7446	0.085422	1
0.0733	1.83	1.7445	0.085498	1
0.0766	1.824	1.7444	0.079574	1
0.08	1.824	1.7443	0.079652	1
0.0833	1.82	1.7443	0.075729	1
0.0866	1.82	1.7442	0.075805	1
0.09	1.814	1.7441	0.069883	1
0.0933	1.814	1.744	0.069959	1
0.0966	1.811	1.744	0.067035	1
0.1	1.808	1.7439	0.064114	1
0.1033	1.808	1.7438	0.06419	1
0.1066	1.805	1.7437	0.061266	1
0.11	1.805	1.7437	0.061344	1
0.1133	1.802	1.7436	0.058421	1
0.1166	1.798	1.7435	0.054497	1
0.12	1.798	1.7434	0.054575	1
0.1233	1.798	1.7433	0.054651	1
0.1266	1.795	1.7433	0.051727	1
0.13	1.792	1.7432	0.048806	1
0.1333	1.792	1.7431	0.048882	1
0.1366	1.789	1.743	0.045958	1
0.14	1.789	1.743	0.046036	1
0.1433	1.786	1.7429	0.043112	1
0.1466	1.786	1.7428	0.043188	1
0.15	1.786	1.7427	0.043267	1
0.1533	1.783	1.7427	0.040343	1
0.1566	1.783	1.7426	0.040419	1
0.16	1.78	1.7425	0.037497	1
0.1633	1.78	1.7424	0.037573	1
0.1666	1.777	1.7424	0.034649	1
0.17	1.777	1.7423	0.034728	1
0.1733	1.777	1.7422	0.034804	1
0.1766	1.773	1.7421	0.03088	1
0.18	1.773	1.742	0.030958	1
0.1833	1.773	1.742	0.031034	1
0.1866	1.773	1.7419	0.03111	1
0.19	1.77	1.7418	0.028188	1
0.1933	1.77	1.7417	0.028264	1
0.1966	1.77	1.7417	0.02834	1
0.2	1.77	1.7416	0.028419	1
0.2033	1.767	1.7415	0.025495	1
0.2066	1.767	1.7414	0.025571	1
0.21	1.767	1.7414	0.025649	1
0.2133	1.767	1.7413	0.025725	1

0.2166	1.764	1.7412	0.022801	1
0.22	1.764	1.7411	0.022879	1
0.2233	1.764	1.741	0.022955	1
0.2266	1.761	1.741	0.020031	1
0.23	1.761	1.7409	0.02011	1
0.2333	1.761	1.7408	0.020186	1
0.2366	1.761	1.7407	0.020262	1
0.24	1.761	1.7407	0.02034	1
0.2433	1.758	1.7406	0.017416	1
0.2466	1.758	1.7405	0.017492	1
0.25	1.758	1.7404	0.01757	1
0.2533	1.758	1.7404	0.017646	1
0.2566	1.758	1.7403	0.017722	1
0.26	1.758	1.7402	0.0178	1
0.2633	1.758	1.7401	0.017876	1
0.2666	1.758	1.74	0.017952	1
0.27	1.755	1.74	0.01503	1
0.2733	1.755	1.7399	0.015106	1
0.2766	1.755	1.7398	0.015182	1
0.28	1.755	1.7397	0.01526	1
0.2833	1.755	1.7397	0.015336	1
0.2866	1.751	1.7396	0.011412	1
0.29	1.751	1.7395	0.011491	1
0.2933	1.751	1.7394	0.011566	1
0.2966	1.751	1.7394	0.011642	1
0.3	1.751	1.7393	0.011721	1
0.3033	1.751	1.7392	0.011796	1
0.3066	1.751	1.7391	0.011872	1
0.31	1.751	1.739	0.011951	1
0.3133	1.751	1.739	0.012026	1
0.3166	1.748	1.7389	0.0091024	1
0.32	1.748	1.7388	0.0091806	1
0.3233	1.748	1.7387	0.0092565	1
0.3266	1.748	1.7387	0.0093324	1
0.33	1.748	1.7386	0.0094105	1
0.3333	1.748	1.7385	0.0094864	1
0.35	1.748	1.7381	0.0098704	1
0.3666	1.745	1.7377	0.0072519	1
0.3833	1.742	1.7374	0.0046357	1
0.4	1.742	1.737	0.0050194	1
0.4166	1.742	1.7366	0.0054007	1
0.4333	1.739	1.7362	0.0027842	1
0.45	1.739	1.7358	0.0031676	1
0.4666	1.736	1.7355	0.0005487	1
0.4833	1.736	1.7351	0.00093197	1
0.5	1.733	1.7347	-0.0016848	1
0.5166	1.733	1.7343	-0.001304	1
0.5333	1.73	1.7339	-0.003921	1
0.55	1.73	1.7335	-0.0035381	1
0.5666	1.73	1.7332	-0.0031575	1
0.5833	1.726	1.7328	-0.0067748	1
0.6	1.726	1.7324	-0.0063921	1
0.6166	1.723	1.732	-0.0090118	1
0.6333	1.723	1.7316	-0.0086293	1
0.65	1.723	1.7312	-0.0082469	1
0.6666	1.723	1.7309	-0.0078668	1
0.6833	1.72	1.7305	-0.010485	1
0.7	1.72	1.7301	-0.010102	1
0.7166	1.72	1.7297	-0.0097226	1
0.7333	1.72	1.7293	-0.0093406	1

0.75	1.717	1.729	-0.011959	1
0.7666	1.717	1.7286	-0.011579	1
0.7833	1.717	1.7282	-0.011197	1
0.8	1.717	1.7278	-0.010816	1
0.8166	1.714	1.7274	-0.013436	1
0.8333	1.714	1.7271	-0.013055	1
0.85	1.714	1.7267	-0.012674	1
0.8666	1.714	1.7263	-0.012294	1
0.8833	1.711	1.7259	-0.014913	1
0.9	1.711	1.7255	-0.014532	1
0.9166	1.711	1.7252	-0.014153	1
0.9333	1.708	1.7248	-0.016772	1
0.95	1.708	1.7244	-0.016391	1
0.9666	1.708	1.724	-0.016013	1
0.9833	1.708	1.7236	-0.015632	1
1	1.704	1.7233	-0.019251	1
1.2	1.695	1.7187	-0.023699	1
1.4	1.683	1.7142	-0.031159	1
1.6	1.676	1.7096	-0.033631	1
1.8	1.667	1.7051	-0.038115	1
2	1.657	1.7006	-0.04361	1
2.2	1.648	1.6961	-0.048118	1
2.4	1.642	1.6916	-0.049637	1
2.6	1.635	1.6872	-0.052168	1
2.8	1.626	1.6827	-0.056712	1
3	1.62	1.6783	-0.058266	1
3.2	1.614	1.6738	-0.059833	1
3.4	1.604	1.6694	-0.065411	1
3.6	1.598	1.665	-0.067001	1
3.8	1.592	1.6606	-0.068603	1
4	1.582	1.6562	-0.074216	1
4.2	1.579	1.6518	-0.072841	1
4.4	1.57	1.6475	-0.077477	1
4.6	1.563	1.6431	-0.080125	1
4.8	1.557	1.6388	-0.081785	1
5	1.551	1.6345	-0.083456	1
5.2	1.545	1.6301	-0.085138	1
5.4	1.538	1.6258	-0.087832	1
5.6	1.532	1.6215	-0.089537	1
5.8	1.526	1.6173	-0.091253	1
6	1.52	1.613	-0.092981	1
6.2	1.513	1.6087	-0.09572	1
6.4	1.507	1.6045	-0.09747	1
6.6	1.501	1.6002	-0.099232	1
6.8	1.494	1.596	-0.102	1
7	1.488	1.5918	-0.10379	1
7.2	1.482	1.5876	-0.10558	1
7.4	1.476	1.5834	-0.10739	1
7.6	1.473	1.5792	-0.10621	1
7.8	1.466	1.575	-0.10904	1
8	1.46	1.5709	-0.11087	1
8.2	1.454	1.5667	-0.11272	1
8.4	1.447	1.5626	-0.11559	1
8.6	1.444	1.5585	-0.11446	1
8.8	1.438	1.5543	-0.11634	1
9	1.432	1.5502	-0.11824	1
9.2	1.429	1.5461	-0.11714	1
9.4	1.422	1.5421	-0.12006	1
9.6	1.416	1.538	-0.12198	1
9.8	1.413	1.5339	-0.12092	1

10	1.407	1.5299	-0.12287	1
12	1.36	1.4899	-0.12993	1
14	1.316	1.451	-0.13504	1
16	1.272	1.4132	-0.14116	1
18	1.234	1.3763	-0.14227	1
20	1.2	1.3403	-0.14034	1
22	1.165	1.3054	-0.14035	1
24	1.134	1.2713	-0.13728	1
26	1.103	1.2381	-0.13509	1
28	1.078	1.2058	-0.12777	1
30	1.049	1.1743	-0.12529	1
32	1.024	1.1436	-0.11964	1
34	1.002	1.1138	-0.11178	1
36	0.981	1.0847	-0.10371	1
38	0.959	1.0564	-0.097392	1
40	0.94	1.0288	-0.088816	1
42	0.921	1.002	-0.080959	1
44	0.902	0.9758	-0.073803	1
46	0.883	0.95033	-0.06733	1
48	0.871	0.92552	-0.054522	1
50	0.855	0.90136	-0.046361	1
52	0.84	0.87783	-0.037831	1
54	0.824	0.85492	-0.030916	1
56	0.814	0.8326	-0.018598	1
58	0.799	0.81086	-0.011864	1
60	0.786	0.7897	-0.0036962	1
62	0.777	0.76908	0.0079186	1
64	0.764	0.749	0.014995	1
66	0.755	0.72945	0.025548	1
68	0.746	0.71041	0.03559	1
70	0.736	0.69186	0.044135	1
72	0.727	0.6738	0.053196	1
74	0.717	0.65621	0.060785	1
76	0.708	0.63908	0.068916	1
78	0.698	0.6224	0.075599	1
80	0.692	0.60615	0.085847	1
82	0.686	0.59033	0.09567	1
84	0.677	0.57492	0.10208	1
86	0.67	0.55991	0.11009	1
88	0.664	0.5453	0.1187	1
90	0.658	0.53106	0.12694	1
92	0.655	0.5172	0.1378	1
94	0.648	0.5037	0.1443	1
96	0.642	0.49055	0.15145	1
98	0.636	0.47774	0.15826	1
100	0.633	0.46527	0.16773	1
110	0.608	0.40763	0.20037	1
120	0.592	0.35713	0.23487	1
130	0.573	0.31289	0.26011	1

=====

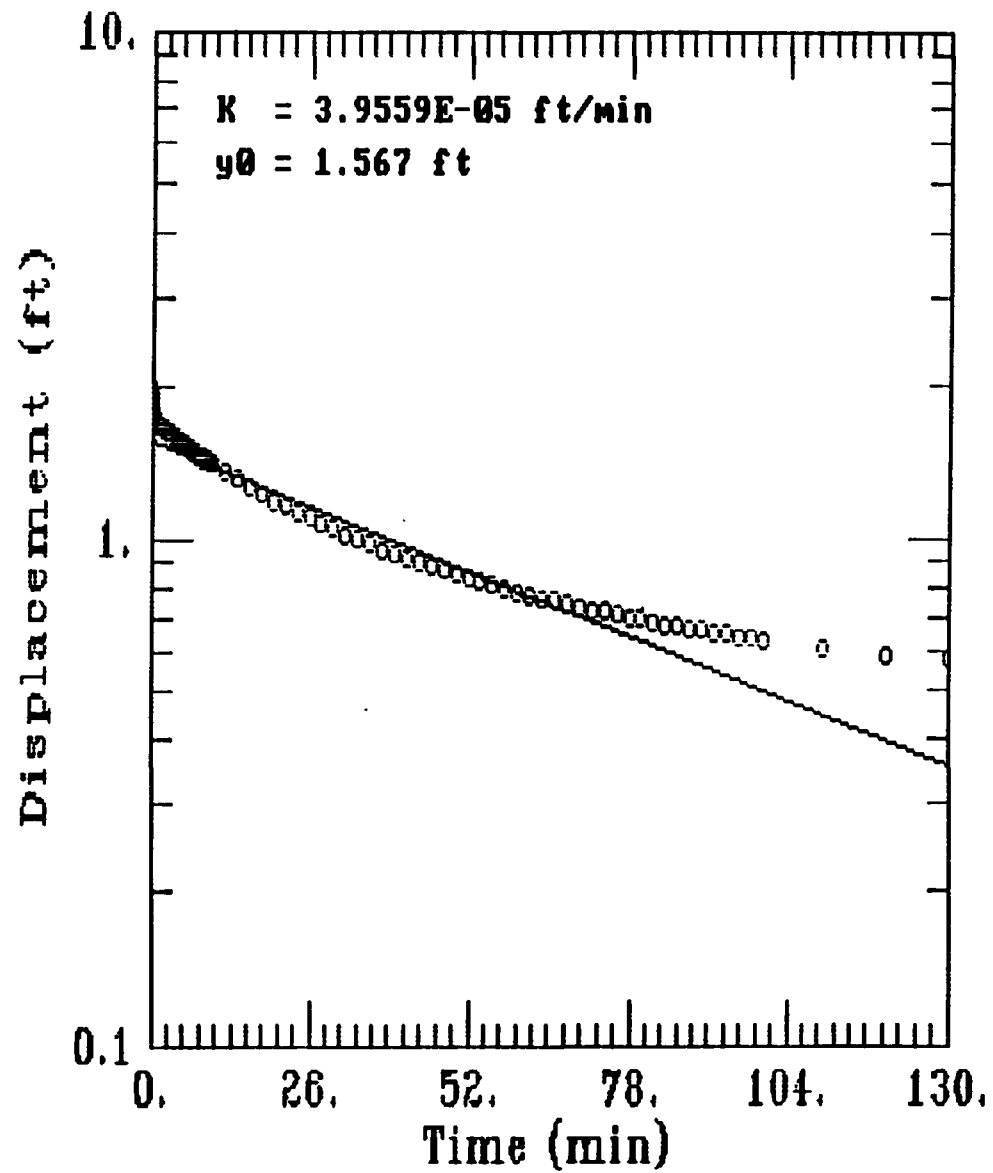
RESULTS FROM VISUAL CURVE MATCHING

SUAL MATCH PARAMETER ESTIMATES

Estimate
K = 3.9559E-005
y0 = 1.5668E+000

302710

MW-04 SLUG TEST DATA



302711

[illegible]

By:
Glenn M. Duffield
and
James O. Rumbaugh, III

(703) 476 - 0335

- o confined aquifers, unconfined aquifers, and leaky aquifers
- o pumping tests, injection tests, recovery tests, and slug tests

- o Interactive, menu-driven program design
- o Nonlinear least-squares estimation of aquifer coefficients
- o Statistical analysis of results
- o Complete graphical display of results

[illegible]

A Q T E S O L V R E S U L T S
Version 1.10

16:20:40

TEST DESCRIPTION

```
Data set..... slugmw5.txt
Data set title..... MW-05 SLUG TEST DATA
```

Knowns and Constants:

No. of data points.....	170		
Radius of well casing.....	0.167		
Radius of well.....	0.417		
Aquifer saturated thickness.....	10.31		
Well screen length.....	5		
Static height of water in well.....	10.31		
Log(Re/Rw).....	2.183		
A, B, C.....	0.000,	0.000,	1.381

ANALYTICAL METHOD

Touwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
K =	6.1427E-003 +/-	5.6718E-005
y0 =	2.1241E+000 +/-	6.4286E-003

ANALYSIS OF MODEL RESIDUALS

```
residual = calculated - observed
weighted residual = residual * weight
```

Weighted Residual Statistics:

Number of residuals.....	170
Number of estimated parameters....	2
Degrees of freedom.....	168
Residual mean.....	0.01471
Residual standard deviation.....	0.03391
Residual variance.....	0.00115

302713

Model Residuals:

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

0.0533	2.039	2.0129	0.026092	1
0.0566	2.014	2.0062	0.0077827	1
0.06	2.011	1.9993	0.011653	1
0.0633	1.995	1.9927	0.002298	1
0.0666	1.992	1.9861	0.0059213	1
0.07	1.983	1.9793	0.0037223	1
0.0733	1.977	1.9727	0.0043009	1
0.0766	1.967	1.9661	0.00085774	1
0.08	1.955	1.9594	-0.0044096	1
0.0833	1.958	1.9529	0.0051031	1
0.0866	1.948	1.9464	0.0015941	1
0.09	1.942	1.9397	0.0022592	1
0.0933	1.936	1.9333	0.0027064	1
0.0966	1.927	1.9269	0.00013228	1
0.1	1.92	1.9203	-0.00026951	1
0.1033	1.914	1.9139	0.00011303	1
0.1066	1.908	1.9075	0.00047436	1
0.11	1.901	1.901	6.3378E-006	1
0.1133	1.892	1.8947	-0.0026752	1
0.1166	1.886	1.8884	-0.0023777	1
0.12	1.88	1.8819	-0.0019113	1
0.1233	1.873	1.8757	-0.0026563	1
0.1266	1.867	1.8694	-0.002422	1
0.13	1.861	1.863	-0.0020205	1
0.1333	1.854	1.8568	-0.0028282	1
0.1366	1.848	1.8507	-0.0026566	1
0.14	1.845	1.8443	0.00068068	1
0.1433	1.836	1.8382	-0.0021892	1
0.1466	1.829	1.8321	-0.0030795	1
0.15	1.823	1.8258	-0.0028059	1
0.1533	1.817	1.8197	-0.0027373	1
0.1566	1.811	1.8137	-0.0026889	1
0.16	1.804	1.8075	-0.0034783	1
0.1633	1.801	1.8015	-0.00047061	1
0.1666	1.795	1.7955	-0.00048293	1
0.17	1.789	1.7893	-0.00033462	1
0.1733	1.782	1.7834	-0.0013873	1
0.1766	1.776	1.7775	-0.0014597	1
0.18	1.77	1.7714	-0.0013731	1
0.1833	1.764	1.7655	-0.0014855	1
0.1866	1.757	1.7596	-0.0026174	1
0.19	1.754	1.7536	0.00040811	1
0.1933	1.748	1.7478	0.00023665	1
0.1966	1.742	1.742	4.5818E-005	1
0.2	1.735	1.736	-0.00098917	1
0.2033	1.729	1.7302	-0.0012191	1
0.2066	1.726	1.7245	0.0015317	1
0.21	1.717	1.7186	-0.0015631	1
0.2133	1.714	1.7129	0.001149	1
0.2166	1.707	1.7072	-0.0001579	1
0.22	1.701	1.7013	-0.00031205	1
0.2233	1.695	1.6957	-0.00065727	1
0.2266	1.692	1.69	0.0019787	1
0.23	1.685	1.6842	0.00076589	1
0.2333	1.679	1.6786	0.0003639	1
0.2366	1.673	1.6731	-5.6694E-005	1
0.24	1.67	1.6673	0.0026724	1
0.2433	1.663	1.6618	0.0012142	1
0.2466	1.657	1.6563	0.00073761	1

302714

0.25	1.654	1.6506	0.0034092	1
0.2533	1.648	1.6451	0.0028954	1
0.2566	1.641	1.6396	0.0013633	1
0.26	1.635	1.634	0.00097797	1
0.2633	1.629	1.6286	0.00040909	1
0.2666	1.626	1.6232	0.0028222	1
0.27	1.62	1.6176	0.0023804	1
0.2733	1.616	1.6122	0.003757	1
0.2766	1.61	1.6069	0.0031158	1
0.28	1.607	1.6014	0.0056183	1
0.2833	1.601	1.5961	0.0049409	1
0.2866	1.594	1.5908	0.0032458	1
0.29	1.588	1.5853	0.0026931	1
0.2933	1.582	1.58	0.0019623	1
0.2966	1.579	1.5748	0.004214	1
0.3	1.573	1.5694	0.0036065	1
0.3033	1.569	1.5642	0.0048229	1
0.3066	1.563	1.559	0.0040218	1
0.31	1.56	1.5536	0.0063603	1
0.3133	1.554	1.5485	0.0055242	1
0.3166	1.547	1.5433	0.003671	1
0.32	1.544	1.538	0.0059558	1
0.3233	1.538	1.5329	0.005068	1
0.3266	1.532	1.5278	0.0041631	1
0.33	1.529	1.5226	0.0063949	1
0.3333	1.522	1.5175	0.0044557	1
0.35	1.497	1.4922	0.0048096	1
0.3666	1.469	1.4674	0.0015918	1
0.3833	1.444	1.4429	0.0011081	1
0.4	1.419	1.4188	0.00021476	1
0.4166	1.394	1.3952	-0.0012221	1
0.4333	1.369	1.3719	-0.0029119	1
0.45	1.347	1.349	-0.0019911	1
0.4666	1.325	1.3266	-0.0015871	1
0.4833	1.3	1.3044	-0.0044235	1
0.5	1.278	1.2826	-0.0046303	1
0.5166	1.256	1.2613	-0.0053284	1
0.5333	1.237	1.2403	-0.0032551	1
0.55	1.215	1.2195	-0.004534	1
0.5666	1.193	1.1993	-0.00628	1
0.5833	1.171	1.1792	-0.0082434	1
0.6	1.153	1.1595	-0.0065415	1
0.6166	1.134	1.1403	-0.0062839	1
0.6333	1.115	1.1212	-0.006233	1
0.65	1.096	1.1025	-0.0065003	1
0.6666	1.077	1.0842	-0.00719	1
0.6833	1.059	1.0661	-0.0070763	1
0.7	1.04	1.0483	-0.0082651	1
0.7166	1.021	1.0309	-0.0098556	1
0.7333	1.005	1.0136	-0.0086329	1
0.75	0.99	0.9967	-0.0066979	1
0.7666	0.971	0.98014	-0.0091448	1
0.7833	0.955	0.96377	-0.0087693	1
0.8	0.936	0.94767	-0.011667	1
0.8166	0.924	0.93193	-0.0079286	1
0.8333	0.908	0.91636	-0.0083587	1
0.85	0.893	0.90105	-0.0080489	1
0.8666	0.877	0.88608	-0.0090843	1
0.8833	0.861	0.87128	-0.01028	1
0.9	0.849	0.85672	-0.0077237	1

0.9166	0.833	0.8425	-0.0094953	1
0.9333	0.821	0.82842	-0.0074195	1
0.95	0.808	0.81458	-0.006579	1
0.9666	0.795	0.80105	-0.0060505	1
0.9833	0.78	0.78767	-0.0076672	1
1	0.767	0.77451	-0.0075075	1
1.2	0.598	0.63299	-0.034988	1
1.4	0.491	0.51733	-0.026327	1
1.6	0.41	0.4228	-0.0128	1
1.8	0.341	0.34554	-0.0045447	1
2	0.291	0.28241	0.008594	1
2.2	0.247	0.2308	0.016196	1
2.4	0.216	0.18863	0.027369	1
2.6	0.188	0.15416	0.033836	1
2.8	0.169	0.12599	0.043005	1
3	0.15	0.10297	0.047027	1
3.2	0.134	0.084157	0.049843	1
3.4	0.125	0.06878	0.05622	1
3.6	0.115	0.056212	0.058788	1
3.8	0.109	0.045941	0.063059	1
4	0.103	0.037547	0.065453	1
4.2	0.097	0.030686	0.066314	1
4.4	0.094	0.025079	0.068921	1
4.6	0.09	0.020496	0.069504	1
4.8	0.087	0.016751	0.070249	1
5	0.087	0.01369	0.07331	1
5.2	0.084	0.011189	0.072811	1
5.4	0.081	0.0091445	0.071856	1
5.6	0.081	0.0074736	0.073526	1
5.8	0.081	0.006108	0.074892	1
6	0.081	0.0049919	0.076008	1
6.2	0.078	0.0040798	0.07392	1
6.4	0.078	0.0033343	0.074666	1
6.6	0.078	0.0027251	0.075275	1
6.8	0.078	0.0022271	0.075773	1
7	0.078	0.0018202	0.07618	1
7.2	0.078	0.0014876	0.076512	1
7.4	0.075	0.0012158	0.073784	1
7.6	0.075	0.00099363	0.074006	1
7.8	0.075	0.00081207	0.074188	1
8	0.075	0.00066369	0.074336	1
8.2	0.075	0.00054242	0.074458	1
8.4	0.075	0.00044331	0.074557	1
8.6	0.075	0.0003623	0.074638	1
8.8	0.075	0.0002961	0.074704	1
9	0.075	0.000242	0.074758	1
9.2	0.078	0.00019778	0.077802	1
9.4	0.075	0.00016164	0.074838	1
9.6	0.075	0.00013211	0.074868	1
9.8	0.075	0.00010797	0.074892	1
10	0.075	8.8239E-005	0.074912	1

=====

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

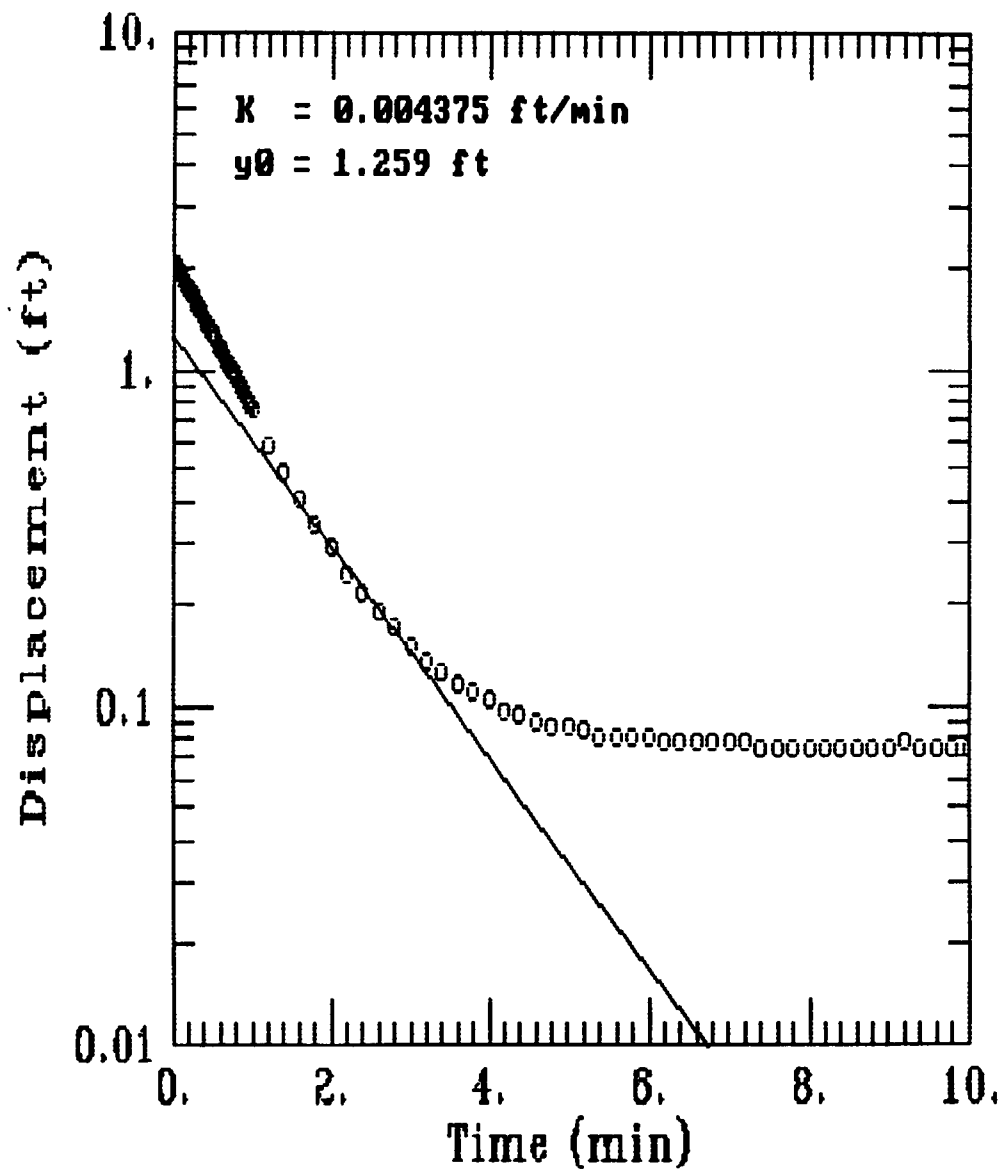
Estimate

302716

[illegible]

302718

MW-05 SLUG TEST DATA



[illegible]

Geraghty & Miller Modeling Group
1895 Preston White Drive, Suite 301
Reston, VA 22091

- o confined aquifers, unconfined aquifers, and leaky aquifers
- o pumping tests, injection tests, recovery tests, and slug tests

- o Interactive, menu-driven program design
- o Nonlinear least-squares estimation of aquifer coefficients
- o Statistical analysis of results
- o Complete graphical display of results

[illegible]

0.04	2.309	2.1846	0.12442	1
0.0433	2.306	2.1844	0.12157	1
0.0466	2.284	2.1843	0.099725	1
0.05	2.274	2.1841	0.08988	1
0.0533	2.271	2.184	0.087031	1
0.0566	2.265	2.1838	0.081182	1
0.06	2.262	2.1837	0.078338	1
0.0633	2.252	2.1835	0.068489	1
0.0666	2.259	2.1834	0.07564	1
0.07	2.255	2.1832	0.071795	1
0.0733	2.252	2.1831	0.068946	1
0.0766	2.255	2.1829	0.072097	1
0.08	2.252	2.1827	0.069253	1
0.0833	2.252	2.1826	0.069403	1
0.0866	2.252	2.1824	0.069554	1
0.09	2.252	2.1823	0.06971	1
0.0933	2.252	2.1821	0.069861	1
0.0966	2.249	2.182	0.067011	1
0.1	2.249	2.1818	0.067167	1
0.1033	2.246	2.1817	0.064318	1
0.1066	2.246	2.1815	0.064468	1
0.11	2.246	2.1814	0.064624	1
0.1133	2.246	2.1812	0.064775	1
0.1166	2.246	2.1811	0.064925	1
0.12	2.243	2.1809	0.062081	1
0.1233	2.243	2.1808	0.062232	1
0.1266	2.243	2.1806	0.062382	1
0.13	2.243	2.1805	0.062538	1
0.1333	2.24	2.1803	0.059688	1
0.1366	2.24	2.1802	0.059839	1
0.14	2.24	2.18	0.059994	1
0.1433	2.24	2.1799	0.060145	1
0.1466	2.24	2.1797	0.060296	1
0.15	2.237	2.1795	0.057451	1
0.1533	2.237	2.1794	0.057602	1
0.1566	2.237	2.1792	0.057752	1
0.16	2.237	2.1791	0.057907	1
0.1633	2.237	2.1789	0.058058	1
0.1666	2.234	2.1788	0.055209	1
0.17	2.234	2.1786	0.055364	1
0.1733	2.234	2.1785	0.055514	1
0.1766	2.234	2.1783	0.055665	1
0.18	2.234	2.1782	0.05582	1
0.1833	2.234	2.178	0.055971	1
0.1866	2.23	2.1779	0.052121	1
0.19	2.23	2.1777	0.052276	1
0.1933	2.23	2.1776	0.052427	1
0.1966	2.23	2.1774	0.052577	1
0.2	2.227	2.1773	0.049732	1
0.2033	2.227	2.1771	0.049883	1
0.2066	2.227	2.177	0.050033	1
0.21	2.227	2.1768	0.050189	1
0.2133	2.227	2.1767	0.050339	1
0.2166	2.227	2.1765	0.050489	1
0.22	2.227	2.1764	0.050644	1
0.2233	2.227	2.1762	0.050795	1
0.2266	2.224	2.1761	0.047945	1
0.23	2.224	2.1759	0.0481	1
0.2333	2.224	2.1757	0.048251	1

302721

0.2366	2.224	2.1756	0.048401	1
0.24	2.221	2.1754	0.045556	1
0.2433	2.221	2.1753	0.045706	1
0.2466	2.221	2.1751	0.045857	1
0.25	2.221	2.175	0.046012	1
0.2533	2.221	2.1748	0.046162	1
0.2566	2.221	2.1747	0.046312	1
0.26	2.221	2.1745	0.046467	1
0.2633	2.218	2.1744	0.043618	1
0.2666	2.218	2.1742	0.043768	1
0.27	2.218	2.1741	0.043923	1
0.2733	2.218	2.1739	0.044073	1
0.2766	2.218	2.1738	0.044223	1
0.28	2.218	2.1736	0.044378	1
0.2833	2.218	2.1735	0.044528	1
0.2866	2.218	2.1733	0.044679	1
0.29	2.215	2.1732	0.041833	1
0.2933	2.215	2.173	0.041984	1
0.2966	2.215	2.1729	0.042134	1
0.3	2.215	2.1727	0.042289	1
0.3033	2.215	2.1726	0.042439	1
0.3066	2.215	2.1724	0.042589	1
0.31	2.215	2.1723	0.042744	1
0.3133	2.212	2.1721	0.039894	1
0.3166	2.212	2.172	0.040044	1
0.32	2.212	2.1718	0.040199	1
0.3233	2.212	2.1717	0.040349	1
0.3266	2.212	2.1715	0.040499	1
0.33	2.208	2.1713	0.036654	1
0.3333	2.208	2.1712	0.036804	1
0.35	2.208	2.1704	0.037563	1
0.3666	2.205	2.1697	0.035318	1
0.3833	2.202	2.1689	0.033077	1
0.4	2.199	2.1682	0.030835	1
0.4166	2.199	2.1674	0.031589	1
0.4333	2.196	2.1667	0.029347	1
0.45	2.193	2.1659	0.027105	1
0.4666	2.193	2.1651	0.027858	1
0.4833	2.19	2.1644	0.025615	1
0.5	2.19	2.1636	0.026372	1
0.5166	2.187	2.1629	0.024124	1
0.5333	2.183	2.1621	0.020881	1
0.55	2.183	2.1614	0.021637	1
0.5666	2.18	2.1606	0.019389	1
0.5833	2.18	2.1599	0.020144	1
0.6	2.177	2.1591	0.0179	1
0.6166	2.174	2.1583	0.01565	1
0.6333	2.174	2.1576	0.016405	1
0.65	2.171	2.1568	0.01416	1
0.6666	2.171	2.1561	0.01491	1
0.6833	2.168	2.1553	0.012664	1
0.7	2.168	2.1546	0.013418	1
0.7166	2.165	2.1538	0.011167	1
0.7333	2.165	2.1531	0.01192	1
0.75	2.161	2.1523	0.0086733	1
0.7666	2.161	2.1516	0.0094216	1
0.7833	2.158	2.1508	0.0071741	1
0.8	2.155	2.1501	0.0049264	1
0.8166	2.155	2.1493	0.0056739	1
0.8333	2.152	2.1486	0.0034257	1

302722

0.85	2.152	2.1478	0.0041772	1
0.8666	2.152	2.1471	0.0049239	1
0.8833	2.149	2.1463	0.0026749	1
0.9	2.146	2.1456	0.00042558	1
0.9166	2.146	2.1448	0.0011715	1
0.9333	2.143	2.1441	-0.0010783	1
0.95	2.143	2.1433	-0.00032836	1
0.9666	2.143	2.1426	0.00041681	1
0.9833	2.14	2.1418	-0.0018338	1
1	2.14	2.1411	-0.0010847	1
1.2	2.114	2.1321	-0.018133	1
1.4	2.099	2.1232	-0.024219	1
1.6	2.08	2.1143	-0.034343	1
1.8	2.064	2.1055	-0.041503	1
2	2.052	2.0967	-0.044701	1
2.2	2.036	2.0879	-0.051935	1
2.4	2.017	2.0792	-0.062206	1
2.6	2.005	2.0705	-0.065513	1
2.8	1.989	2.0619	-0.072857	1
3	1.977	2.0532	-0.076236	1
3.2	1.961	2.0447	-0.083652	1
3.4	1.945	2.0361	-0.091104	1
3.6	1.933	2.0276	-0.094592	1
3.8	1.92	2.0191	-0.099115	1
4	1.908	2.0107	-0.10267	1
4.2	1.895	2.0023	-0.10727	1
4.4	1.879	1.9939	-0.1149	1
4.6	1.87	1.9856	-0.11556	1
4.8	1.858	1.9773	-0.11926	1
5	1.845	1.969	-0.12399	1
5.2	1.832	1.9608	-0.12876	1
5.4	1.82	1.9526	-0.13256	1
5.6	1.807	1.9444	-0.1374	1
5.8	1.798	1.9363	-0.13827	1
6	1.786	1.9282	-0.14218	1
6.2	1.773	1.9201	-0.14711	1
6.4	1.767	1.9121	-0.14509	1
6.6	1.754	1.9041	-0.15009	1
6.8	1.742	1.8961	-0.15413	1
7	1.732	1.8882	-0.15621	1
7.2	1.723	1.8803	-0.15731	1
7.4	1.713	1.8724	-0.15945	1
7.6	1.701	1.8646	-0.16362	1
7.8	1.688	1.8568	-0.16883	1
8	1.679	1.8491	-0.17006	1
8.2	1.67	1.8413	-0.17133	1
8.4	1.66	1.8336	-0.17363	1
8.6	1.651	1.826	-0.17497	1
8.8	1.641	1.8183	-0.17733	1
9	1.632	1.8107	-0.17873	1
9.2	1.623	1.8032	-0.18016	1
9.4	1.613	1.7956	-0.18262	1
9.6	1.601	1.7881	-0.18712	1
9.8	1.591	1.7806	-0.18964	1
10	1.585	1.7732	-0.1882	1
12	1.437	1.7004	-0.20344	1
14	1.419	1.6307	-0.21167	1
16	1.35	1.5638	-0.21377	1
18	1.287	1.4996	-0.21261	1
20	1.231	1.4381	-0.20708	1

RESULTS FROM VISUAL CURVE MATCHING

```

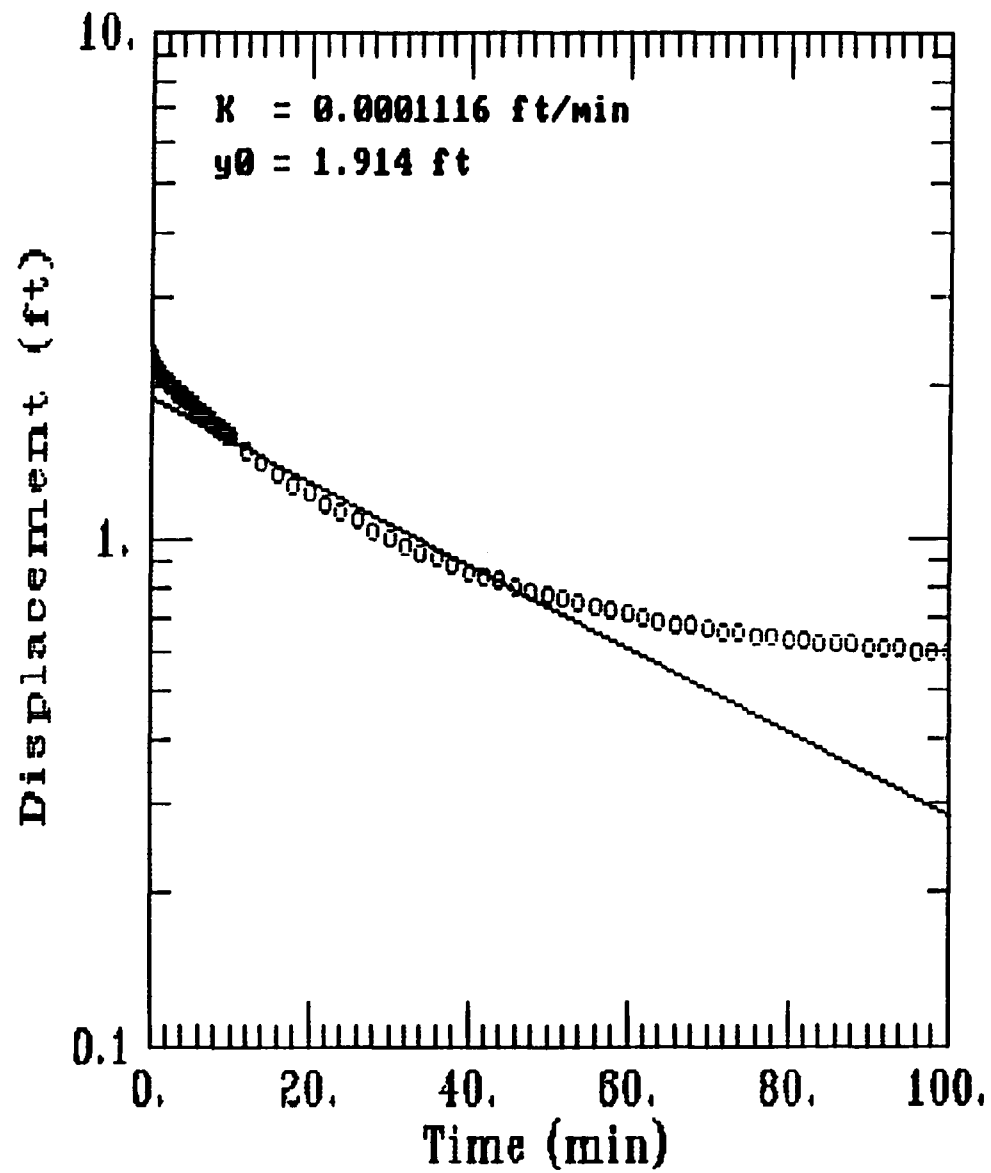
      Estimate
K   =  1.1155E-004
y0  =  1.9139E+000

```

[illegible]

302725

MW-06 SLUG TEST DATA



[illegible]

Glenn M. Duffield
and
James O. Rumbaugh, III

—

A Q T E S O L V is a user-friendly program designed to analyze data from aquifer tests automatically. Aquifer coefficients for a variety of aquifer test conditions can be estimated by A Q T E S O L V, including the following:

- o confined aquifers, unconfined aquifers, and leaky aquifers
- o pumping tests, injection tests, recovery tests, and slug tests

- o Interactive, menu-driven program design
- o Nonlinear least-squares estimation of aquifer coefficients
- o Statistical analysis of results
- o Complete graphical display of results

[illegible]

A Q T E S O L V R E S U L T S
Version 1.10

16:27:08

TEST DESCRIPTION

```
Data set..... slugmw7.txt
Data set title.... MW-07 SLUG TEST DATA
```

Knowns and Constants:

No. of data points.....	178		
Radius of well casing.....	0.083		
Radius of well.....	0.333		
Aquifer saturated thickness.....	10.04		
Well screen length.....	10		
Static height of water in well.....	10.04		
Log(Re/Rw).....	2.574		
A, B, C.....	0.000,	0.000,	1.970

ANALYTICAL METHOD

Howe-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
K =	3.6292E-003 +/-	6.5270E-005
y0 =	1.1759E+000 +/-	1.4631E-002

ANALYSIS OF MODEL RESIDUALS

```
residual = calculated - observed
weighted residual = residual * weight
```

Weighted Residual Statistics:

Number of residuals.....	178
Number of estimated parameters....	2
Degrees of freedom.....	176
Residual mean.....	0.01494
Residual standard deviation.....	0.03529
Residual variance.....	0.001245

Model Residuals:

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

302727

0.05	1.071	0.95821	0.11279	1
0.0533	1.031	0.94535	0.085647	1
0.0566	1.002	0.93267	0.069333	1
0.06	0.99	0.91978	0.070224	1
0.0633	0.962	0.90743	0.054567	1
0.0666	0.943	0.89526	0.047743	1
0.07	0.924	0.88288	0.041118	1
0.0733	0.902	0.87104	0.030965	1
0.0766	0.886	0.85935	0.026653	1
0.08	0.871	0.84747	0.023531	1
0.0833	0.852	0.8361	0.015903	1
0.0866	0.836	0.82488	0.011122	1
0.09	0.821	0.81348	0.0075241	1
0.0933	0.805	0.80256	0.0024398	1
0.0966	0.792	0.79179	0.00020903	1
0.1	0.777	0.78085	-0.0038465	1
0.1033	0.764	0.77037	-0.0063686	1
0.1066	0.748	0.76003	-0.012031	1
0.11	0.739	0.74953	-0.010526	1
0.1133	0.723	0.73947	-0.016468	1
0.1166	0.714	0.72955	-0.015546	1
0.12	0.701	0.71946	-0.018462	1
0.1233	0.689	0.70981	-0.020807	1
0.1266	0.68	0.70028	-0.020283	1
0.13	0.667	0.6906	-0.023603	1
0.1333	0.658	0.68134	-0.023336	1
0.1366	0.645	0.67219	-0.027194	1
0.14	0.636	0.6629	-0.026902	1
0.1433	0.626	0.65401	-0.028007	1
0.1466	0.617	0.64523	-0.028231	1
0.15	0.607	0.63631	-0.029312	1
0.1533	0.598	0.62777	-0.029774	1
0.1566	0.589	0.61935	-0.03035	1
0.16	0.579	0.61079	-0.031789	1
0.1633	0.57	0.60259	-0.032593	1
0.1666	0.564	0.59451	-0.030507	1
0.17	0.554	0.58629	-0.03229	1
0.1733	0.548	0.57842	-0.030423	1
0.1766	0.539	0.57066	-0.031661	1
0.18	0.532	0.56277	-0.030773	1
0.1833	0.523	0.55522	-0.032221	1
0.1866	0.517	0.54777	-0.030771	1
0.19	0.51	0.5402	-0.0302	1
0.1933	0.504	0.53295	-0.028951	1
0.1966	0.498	0.5258	-0.027799	1
0.2	0.492	0.51853	-0.026532	1
0.2033	0.482	0.51157	-0.029574	1
0.2066	0.476	0.50471	-0.028709	1
0.21	0.47	0.49773	-0.027733	1
0.2133	0.463	0.49105	-0.028054	1
0.2166	0.46	0.48446	-0.024465	1
0.22	0.454	0.47777	-0.023768	1
0.2233	0.448	0.47136	-0.023357	1
0.2266	0.441	0.46503	-0.024032	1
0.23	0.435	0.4586	-0.023604	1
0.2333	0.432	0.45245	-0.02045	1
0.2366	0.426	0.44638	-0.020379	1
0.24	0.419	0.44021	-0.021209	1
0.2433	0.413	0.4343	-0.021302	1

0.2466	0.41	0.42847	-0.018474	1
0.25	0.404	0.42255	-0.018552	1
0.2533	0.401	0.41688	-0.015882	1
0.2566	0.394	0.41129	-0.017288	1
0.26	0.391	0.4056	-0.014603	1
0.2633	0.388	0.40016	-0.01216	1
0.2666	0.382	0.39479	-0.012791	1
0.27	0.379	0.38933	-0.010334	1
0.2733	0.372	0.38411	-0.012109	1
0.2766	0.369	0.37896	-0.009551	1
0.28	0.366	0.37372	-0.007717	1
0.2833	0.36	0.3687	-0.0087022	1
0.2866	0.357	0.36375	-0.0067548	1
0.29	0.354	0.35873	-0.0047268	1
0.2933	0.347	0.35391	-0.0069132	1
0.2966	0.344	0.34916	-0.0051642	1
0.3	0.341	0.34434	-0.0033379	1
0.3033	0.338	0.33972	-0.0017173	1
0.3066	0.335	0.33516	-0.00015878	1
0.31	0.329	0.33053	-0.0015261	1
0.3133	0.325	0.32609	-0.0010909	1
0.3166	0.322	0.32172	0.00028481	1
0.32	0.319	0.31727	0.0017317	1
0.3233	0.316	0.31301	0.002989	1
0.3266	0.316	0.30881	0.0071892	1
0.33	0.31	0.30454	0.0054577	1
0.3333	0.307	0.30046	0.0065442	1
0.35	0.288	0.2806	0.0073988	1
0.3666	0.275	0.26217	0.012834	1
0.3833	0.26	0.24484	0.015158	1
0.4	0.247	0.22866	0.018338	1
0.4166	0.235	0.21364	0.021361	1
0.4333	0.222	0.19952	0.022478	1
0.45	0.216	0.18634	0.029663	1
0.4666	0.203	0.17409	0.028905	1
0.4833	0.197	0.16259	0.03441	1
0.5	0.188	0.15185	0.036154	1
0.5166	0.181	0.14187	0.03913	1
0.5333	0.172	0.1325	0.039505	1
0.55	0.166	0.12374	0.04226	1
0.5666	0.162	0.11561	0.04639	1
0.5833	0.153	0.10797	0.04503	1
0.6	0.15	0.10084	0.049165	1
0.6166	0.147	0.094211	0.052789	1
0.6333	0.144	0.087985	0.056015	1
0.65	0.141	0.082171	0.058829	1
0.6666	0.134	0.076772	0.057228	1
0.6833	0.131	0.071699	0.059301	1
0.7	0.128	0.066961	0.061039	1
0.7166	0.125	0.062562	0.062438	1
0.7333	0.122	0.058428	0.063572	1
0.75	0.119	0.054567	0.064433	1
0.7666	0.115	0.050982	0.064018	1
0.7833	0.112	0.047613	0.064387	1
0.8	0.109	0.044466	0.064534	1
0.8166	0.106	0.041545	0.064455	1
0.8333	0.103	0.0388	0.0642	1
0.85	0.1	0.036236	0.063764	1
0.8666	0.1	0.033855	0.066145	1
0.8833	0.097	0.031618	0.065382	1

0.9	0.093	0.029529	0.063471	1
0.9166	0.09	0.027589	0.062411	1
0.9333	0.09	0.025765	0.064235	1
0.95	0.087	0.024063	0.062937	1
0.9666	0.087	0.022482	0.064518	1
0.9833	0.084	0.020996	0.063004	1
1	0.081	0.019609	0.061391	1
1.2	0.062	0.0086471	0.053353	1
1.4	0.056	0.0038132	0.052187	1
1.6	0.05	0.0016815	0.048318	1
1.8	0.043	0.00074153	0.042258	1
2	0.04	0.000327	0.039673	1
2.2	0.037	0.0001442	0.036856	1
2.4	0.037	6.3589E-005	0.036936	1
2.6	0.031	2.8042E-005	0.030972	1
2.8	0.028	1.2366E-005	0.027988	1
3	0.028	5.4531E-006	0.027995	1
3.2	0.028	2.4047E-006	0.027998	1
3.4	0.028	1.0604E-006	0.027999	1
3.6	0.028	4.6763E-007	0.028	1
3.8	0.025	2.0621E-007	0.025	1
4	0.021	9.0936E-008	0.021	1
4.2	0.021	4.0101E-008	0.021	1
4.4	0.021	1.7684E-008	0.021	1
4.6	0.025	7.7982E-009	0.025	1
4.8	0.025	3.4389E-009	0.025	1
5	0.021	1.5165E-009	0.021	1
5.2	0.021	6.6873E-010	0.021	1
5.4	0.021	2.949E-010	0.021	1
5.6	0.021	1.3004E-010	0.021	1
5.8	0.025	5.7347E-011	0.025	1
6	0.028	2.5289E-011	0.028	1
6.2	0.028	1.1152E-011	0.028	1
6.4	0.028	4.9178E-012	0.028	1
6.6	0.028	2.1686E-012	0.028	1
6.8	0.025	9.5633E-013	0.025	1
7	0.025	4.2172E-013	0.025	1
7.2	0.021	1.8597E-013	0.021	1
7.4	0.018	8.2009E-014	0.018	1
7.6	0.021	3.6164E-014	0.021	1
7.8	0.021	1.5948E-014	0.021	1
8	0.021	7.0327E-015	0.021	1
8.2	0.021	3.1013E-015	0.021	1
8.4	0.021	1.3676E-015	0.021	1
8.6	0.025	6.0308E-016	0.025	1
8.8	0.021	2.6595E-016	0.021	1
9	0.021	1.1728E-016	0.021	1
9.2	0.025	5.1717E-017	0.025	1
9.4	0.021	2.2806E-017	0.021	1
9.6	0.021	1.0057E-017	0.021	1
9.8	0.021	4.435E-018	0.021	1
10	0.021	1.9557E-018	0.021	1
12	0.018	5.4388E-022	0.018	1
14	0.015	1.5125E-025	0.015	1
16	0.018	4.2061E-029	0.018	1
18	0.018	1.1697E-032	0.018	1
20	0.015	3.2529E-036	0.015	1
22	0.018	9.046E-040	0.018	1
24	0.015	2.5156E-043	0.015	1

[illegible]

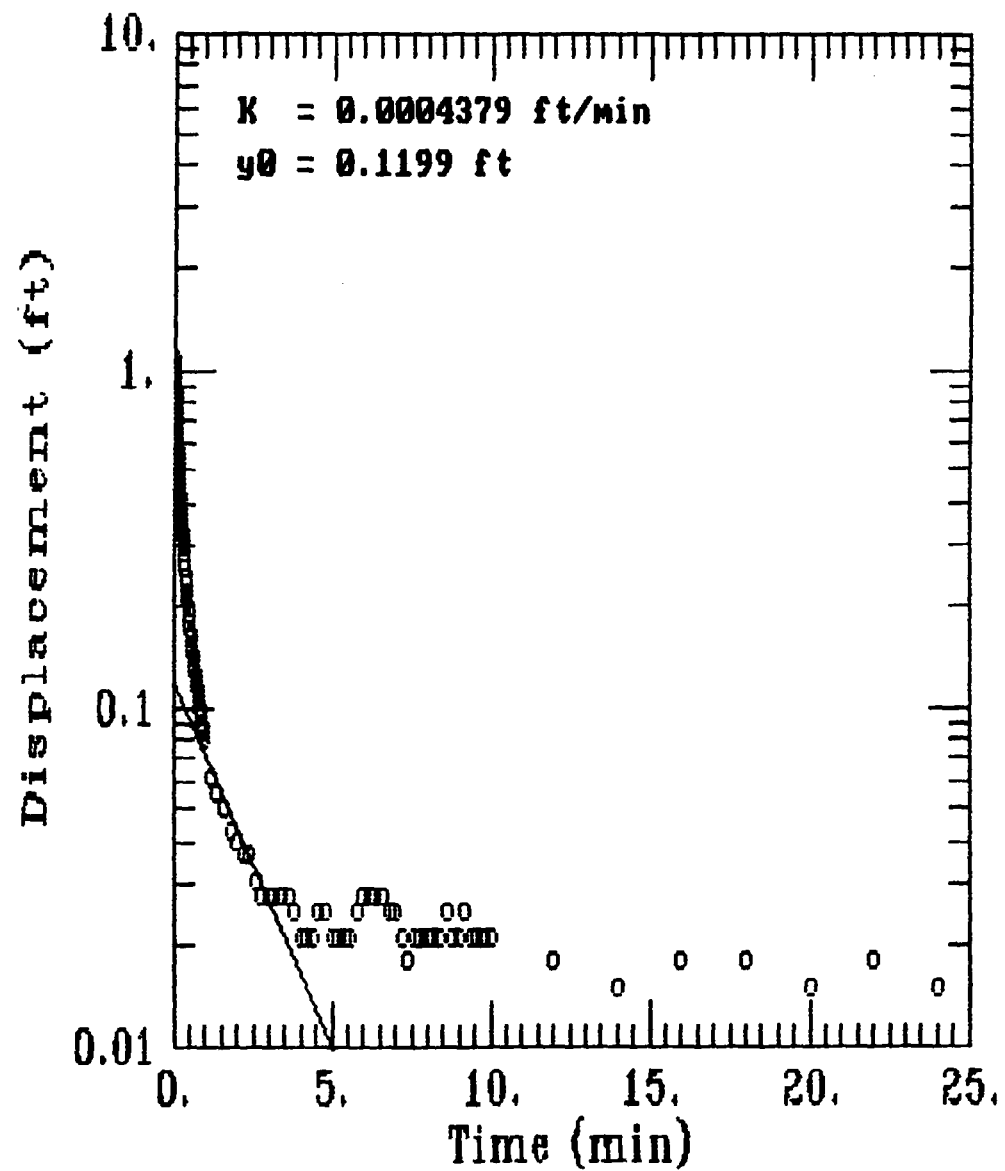
```

      Estimate
K   =  4.3787E-004
y0  =  1.1990E-001

```

[illegible]

MW-07 SLUG TEST DATA



302732

A Q T E S O L V R E S U L T S
Version 1.10

16:32:39

TEST DESCRIPTION

```
Data set..... slugmw8.txt
Data set title.... MW-08 SLUG TEST DATA
```

Knowns and Constants:

No. of data points.....	179		
Radius of well casing.....	0.083		
Radius of well.....	0.333		
Aquifer saturated thickness.....	4.11		
Well screen length.....	5		
Static height of water in well.....	4.11		
Log(Re/Rw).....	1.86		
A, B, C.....	0.000,	0.000,	1.499

ANALYTICAL METHOD

Muwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
K =	6.2692E-004 +/-	1.1978E-005
y0 =	1.3016E+000 +/-	5.8110E-003

ANALYSIS OF MODEL RESIDUALS

```
residual = calculated - observed
weighted residual = residual * weight
```

Weighted Residual Statistics:

Number of residuals.....	179
Number of estimated parameters....	2
Degrees of freedom.....	177
Residual mean.....	0.01417
Residual standard deviation.....	0.04225
Residual variance.....	0.001785

302734

Model Residuals:

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

0.0466	1.365	1.2723	0.092746	1
0.05	1.347	1.2701	0.07686	1
0.0533	1.337	1.2681	0.068909	1
0.0566	1.334	1.266	0.067954	1
0.06	1.325	1.2639	0.061058	1
0.0633	1.318	1.2619	0.056097	1
0.0666	1.312	1.2599	0.052132	1
0.07	1.306	1.2578	0.048226	1
0.0733	1.3	1.2557	0.044255	1
0.0766	1.296	1.2537	0.04228	1
0.08	1.29	1.2516	0.038364	1
0.0833	1.284	1.2496	0.034382	1
0.0866	1.278	1.2476	0.030398	1
0.09	1.275	1.2455	0.029471	1
0.0933	1.268	1.2435	0.02448	1
0.0966	1.265	1.2415	0.023486	1
0.1	1.259	1.2395	0.019549	1
0.1033	1.256	1.2375	0.018549	1
0.1066	1.253	1.2355	0.017545	1
0.11	1.249	1.2334	0.015598	1
0.1133	1.246	1.2314	0.014587	1
0.1166	1.243	1.2294	0.013574	1
0.12	1.24	1.2274	0.012617	1
0.1233	1.237	1.2254	0.011596	1
0.1266	1.234	1.2234	0.010573	1
0.13	1.231	1.2214	0.0096061	1
0.1333	1.228	1.2194	0.0085762	1
0.1366	1.224	1.2175	0.0065432	1
0.14	1.221	1.2154	0.0055664	1
0.1433	1.218	1.2135	0.0045269	1
0.1466	1.215	1.2115	0.0034842	1
0.15	1.212	1.2095	0.0024975	1
0.1533	1.209	1.2076	0.0014485	1
0.1566	1.206	1.2056	0.00039624	1
0.16	1.206	1.2036	0.0023998	1
0.1633	1.202	1.2017	0.00034116	1
0.1666	1.199	1.1997	-0.00072057	1
0.17	1.196	1.1977	-0.0017268	1
0.1733	1.196	1.1958	0.0002051	1
0.1766	1.19	1.1939	-0.0038661	1
0.18	1.19	1.1919	-0.0018821	1
0.1833	1.187	1.19	-0.0029596	1
0.1866	1.184	1.188	-0.0040402	1
0.19	1.181	1.1861	-0.0050658	1
0.1933	1.181	1.1842	-0.0031527	1
0.1966	1.177	1.1822	-0.0052427	1
0.2	1.174	1.1803	-0.006278	1
0.2033	1.171	1.1784	-0.0073742	1
0.2066	1.171	1.1765	-0.0054735	1
0.21	1.168	1.1745	-0.0065184	1
0.2133	1.165	1.1726	-0.0076239	1
0.2166	1.165	1.1707	-0.0057325	1
0.22	1.162	1.1688	-0.0067869	1
0.2233	1.159	1.1669	-0.0079016	1
0.2266	1.159	1.165	-0.0060194	1
0.23	1.155	1.1631	-0.0080834	1
0.2333	1.152	1.1612	-0.0092073	1
0.2366	1.152	1.1593	-0.0073343	1
0.24	1.149	1.1574	-0.0084077	1

0.2433	1.146	1.1555	-0.0095408	1
0.2466	1.143	1.1537	-0.010677	1
0.25	1.143	1.1518	-0.0087597	1
0.2533	1.14	1.1499	-0.0099019	1
0.2566	1.14	1.148	-0.0080471	1
0.26	1.137	1.1461	-0.0091392	1
0.2633	1.134	1.1443	-0.01029	1
0.2666	1.134	1.1424	-0.0084448	1
0.27	1.13	1.1405	-0.010546	1
0.2733	1.127	1.1387	-0.011706	1
0.2766	1.127	1.1369	-0.0098698	1
0.28	1.124	1.135	-0.01098	1
0.2833	1.121	1.1331	-0.01215	1
0.2866	1.121	1.1313	-0.010322	1
0.29	1.118	1.1294	-0.011442	1
0.2933	1.118	1.1276	-0.0096201	1
0.2966	1.115	1.1258	-0.010801	1
0.3	1.112	1.1239	-0.01193	1
0.3033	1.112	1.1221	-0.010117	1
0.3066	1.108	1.1203	-0.012308	1
0.31	1.108	1.1184	-0.010446	1
0.3133	1.105	1.1166	-0.011642	1
0.3166	1.105	1.1148	-0.0098406	1
0.32	1.102	1.113	-0.010988	1
0.3233	1.102	1.1112	-0.0091926	1
0.3266	1.099	1.1094	-0.0104	1
0.33	1.096	1.1076	-0.011557	1
0.3333	1.096	1.1058	-0.0097701	1
0.35	1.087	1.0968	-0.0097735	1
0.3666	1.074	1.0879	-0.013903	1
0.3833	1.065	1.0791	-0.014052	1
0.4	1.055	1.0703	-0.015273	1
0.4166	1.046	1.0616	-0.015617	1
0.4333	1.036	1.053	-0.01698	1
0.45	1.027	1.0444	-0.017413	1
0.4666	1.018	1.036	-0.017966	1
0.4833	1.011	1.0275	-0.016537	1
0.5	1.002	1.0192	-0.017177	1
0.5166	0.993	1.0109	-0.017934	1
0.5333	0.983	1.0027	-0.019709	1
0.55	0.977	0.99455	-0.017551	1
0.5666	0.968	0.98651	-0.018508	1
0.5833	0.958	0.97848	-0.020482	1
0.6	0.952	0.97052	-0.018521	1
0.6166	0.942	0.96267	-0.020671	1
0.6333	0.933	0.95484	-0.021839	1
0.65	0.927	0.94707	-0.02007	1
0.6666	0.917	0.93941	-0.022411	1
0.6833	0.911	0.93177	-0.020768	1
0.7	0.902	0.92419	-0.022187	1
0.7166	0.895	0.91671	-0.021713	1
0.7333	0.886	0.90925	-0.023254	1
0.75	0.88	0.90186	-0.021856	1
0.7666	0.87	0.89456	-0.024563	1
0.7833	0.864	0.88728	-0.023284	1
0.8	0.858	0.88007	-0.022065	1
0.8166	0.848	0.87295	-0.024948	1
0.8333	0.842	0.86585	-0.023845	1
0.85	0.836	0.8588	-0.022801	1
0.8666	0.827	0.85186	-0.024855	1

0.8833	0.82	0.84492	-0.024925	1
0.9	0.814	0.83805	-0.02405	1
0.9166	0.808	0.83127	-0.023272	1
0.9333	0.801	0.82451	-0.023509	1
0.95	0.795	0.81178	-0.022801	1
0.9666	0.786	0.81119	-0.025187	1
0.9833	0.783	0.80459	-0.021587	1
1	0.773	0.79804	-0.025041	1
1.2	0.686	0.72366	-0.037661	1
1.4	0.62	0.65621	-0.036214	1
1.6	0.56	0.59505	-0.035053	1
1.8	0.51	0.53959	-0.029593	1
2	0.466	0.4893	-0.023301	1
2.2	0.426	0.4437	-0.017697	1
2.4	0.388	0.40234	-0.014343	1
2.6	0.357	0.36484	-0.0078436	1
2.8	0.325	0.33084	-0.0058392	1
3	0.3	0.3	-4.1047E-006	1
3.2	0.278	0.27204	0.0059571	1
3.4	0.26	0.24669	0.013312	1
3.6	0.241	0.2237	0.017304	1
3.8	0.225	0.20285	0.022153	1
4	0.213	0.18394	0.029059	1
4.2	0.2	0.1668	0.033203	1
4.4	0.191	0.15125	0.039749	1
4.6	0.184	0.13715	0.046846	1
4.8	0.175	0.12437	0.050629	1
5	0.166	0.11278	0.053221	1
5.2	0.159	0.10227	0.056732	1
5.4	0.156	0.092736	0.063264	1
5.6	0.153	0.084093	0.068907	1
5.8	0.15	0.076255	0.073745	1
6	0.147	0.069148	0.077852	1
6.2	0.144	0.062703	0.081297	1
6.4	0.137	0.056859	0.080141	1
6.6	0.131	0.05156	0.07944	1
6.8	0.131	0.046754	0.084246	1
7	0.131	0.042397	0.088603	1
7.2	0.128	0.038445	0.089555	1
7.4	0.125	0.034862	0.090138	1
7.6	0.122	0.031613	0.090387	1
7.8	0.119	0.028666	0.090334	1
8	0.115	0.025995	0.089005	1
8.2	0.115	0.023572	0.091428	1
8.4	0.112	0.021375	0.090625	1
8.6	0.112	0.019383	0.092617	1
8.8	0.112	0.017576	0.094424	1
9	0.109	0.015938	0.093062	1
9.2	0.109	0.014453	0.094547	1
9.4	0.106	0.013106	0.092894	1
9.6	0.103	0.011884	0.091116	1
9.8	0.1	0.010776	0.089224	1
10	0.097	0.009772	0.087228	1
12	0.1	0.0036736	0.096326	1
14	0.078	0.001381	0.076619	1
16	0.081	0.00051915	0.080481	1
18	0.081	0.00019516	0.080805	1
20	0.084	7.3366E-005	0.083927	1
22	0.078	2.758E-005	0.077972	1
24	0.075	1.0368E-005	0.07499	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

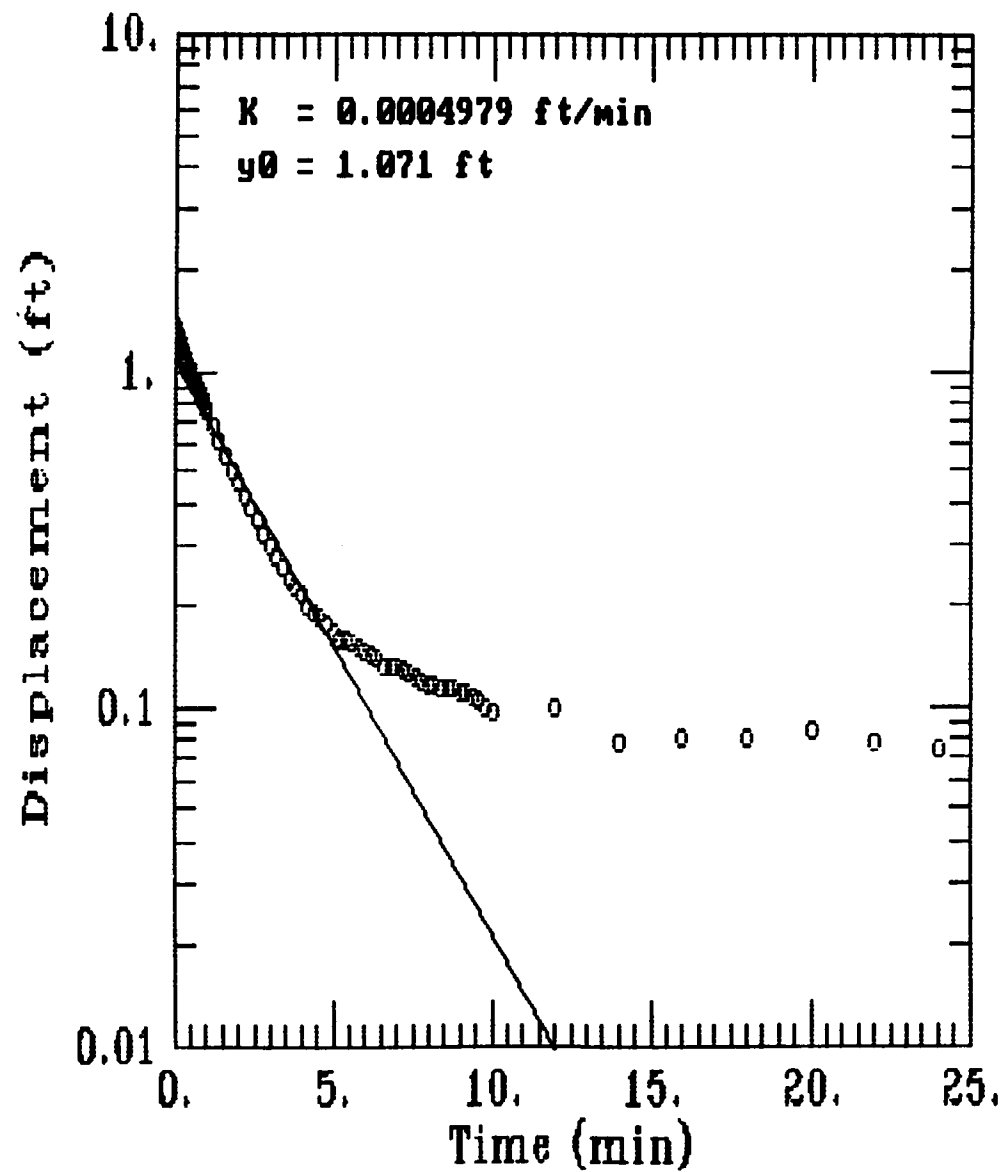
```

      Estimate
K   =  4.9787E-004
y0  =  1.0711E+000

```

[illegible]

MW-08 SLUG TEST DATA



3024508

[illegible]

By:
Glenn M. Duffield
and
James O. Rumbaugh, III

(703) 476 - 0335

- o confined aquifers, unconfined aquifers, and leaky aquifers
- o pumping tests, injection tests, recovery tests, and slug tests

- o Interactive, menu-driven program design
- o Nonlinear least-squares estimation of aquifer coefficients
- o Statistical analysis of results
- o Complete graphical display of results

[illegible]

[illegible]

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[illegible]

```
Data set..... slugmw9.txt
Data set title.... MW-09 SLUG TEST DATA
```

Knowns and Constants:

No. of data points.....	180		
Radius of well casing.....	0.083		
Radius of well.....	0.333		
Aquifer saturated thickness.....	4.56		
Well screen length.....	10		
Static height of water in well.....	4.56		
Log(Re/Rw).....	2.058		
A, B, C.....	0.000,	0.000,	1.970

THE UNIVERSITY OF CHICAGO

Tower-Rice (Unconfined Aquifer Slug Test)

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
K =	2.9468E-003 +/-	1.4053E-005
y0 =	1.5282E+000 +/-	4.4758E-003

ANALYSIS OF MODEL RESIDUALS

```
residual = calculated - observed
weighted residual = residual * weight
```

Weighted Residual Statistics:

Number of residuals.....	180
Number of estimated parameters....	2
Degrees of freedom.....	178
Residual mean.....	0.006244
Residual standard deviation.....	0.01442
Residual variance.....	0.0002079

Model Residuals:

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

302741

0.02	1.447	1.4063	0.040705	1
0.0233	1.418	1.3871	0.030866	1
0.0266	1.396	1.3682	0.027766	1
0.03	1.368	1.349	0.01897	1
0.0333	1.346	1.3306	0.01535	1
0.0366	1.346	1.3125	0.033481	1
0.04	1.306	1.2941	0.011902	1
0.0433	1.284	1.2765	0.0075343	1
0.0466	1.259	1.2591	-7.3614E-005	1
0.05	1.234	1.2414	-0.0074023	1
0.0533	1.227	1.2245	0.002512	1
0.0566	1.205	1.2078	-0.0028042	1
0.06	1.19	1.1909	-0.00085246	1
0.0633	1.171	1.1746	-0.0036269	1
0.0666	1.152	1.1586	-0.0066224	1
0.07	1.133	1.1424	-0.009361	1
0.0733	1.118	1.1268	-0.0087961	1
0.0766	1.102	1.1114	-0.0094433	1
0.08	1.086	1.0958	-0.0098441	1
0.0833	1.071	1.0809	-0.009913	1
0.0866	1.058	1.0662	-0.0081854	1
0.09	1.042	1.0512	-0.0092213	1
0.0933	1.027	1.0369	-0.0098983	1
0.0966	1.014	1.0228	-0.0087703	1
0.1	0.999	1.0084	-0.0094156	1
0.1033	0.986	0.99468	-0.0086758	1
0.1066	0.97	0.98112	-0.011123	1
0.11	0.958	0.96735	-0.009353	1
0.1133	0.945	0.95417	-0.0091726	1
0.1166	0.933	0.94117	-0.0081718	1
0.12	0.92	0.92796	-0.0079624	1
0.1233	0.908	0.91532	-0.0073187	1
0.1266	0.895	0.90285	-0.0078473	1
0.13	0.883	0.89018	-0.0071758	1
0.1333	0.87	0.87805	-0.008047	1
0.1366	0.858	0.86608	-0.0080834	1
0.14	0.848	0.85393	-0.0059278	1
0.1433	0.836	0.84229	-0.0062929	1
0.1466	0.826	0.83082	-0.0048165	1
0.15	0.814	0.81916	-0.0051559	1
0.1533	0.804	0.80799	-0.0039948	1
0.1566	0.792	0.79699	-0.0049857	1
0.16	0.783	0.7858	-0.0027999	1
0.1633	0.77	0.77509	-0.0050932	1
0.1666	0.761	0.76453	-0.0035325	1
0.17	0.751	0.7538	-0.0028021	1
0.1733	0.742	0.74353	-0.0015315	1
0.1766	0.729	0.7334	-0.0044007	1
0.18	0.72	0.72311	-0.0031073	1
0.1833	0.711	0.71325	-0.0022549	1
0.1866	0.701	0.70354	-0.0025367	1
0.19	0.692	0.69366	-0.0016624	1
0.1933	0.682	0.68421	-0.0022111	1
0.1966	0.673	0.67489	-0.0018887	1
0.2	0.664	0.66542	-0.0014165	1
0.2033	0.654	0.65635	-0.0023501	1
0.2066	0.645	0.64741	-0.0024072	1
0.21	0.635	0.63832	-0.0033208	1
0.2133	0.629	0.62962	-0.00062352	1

302742

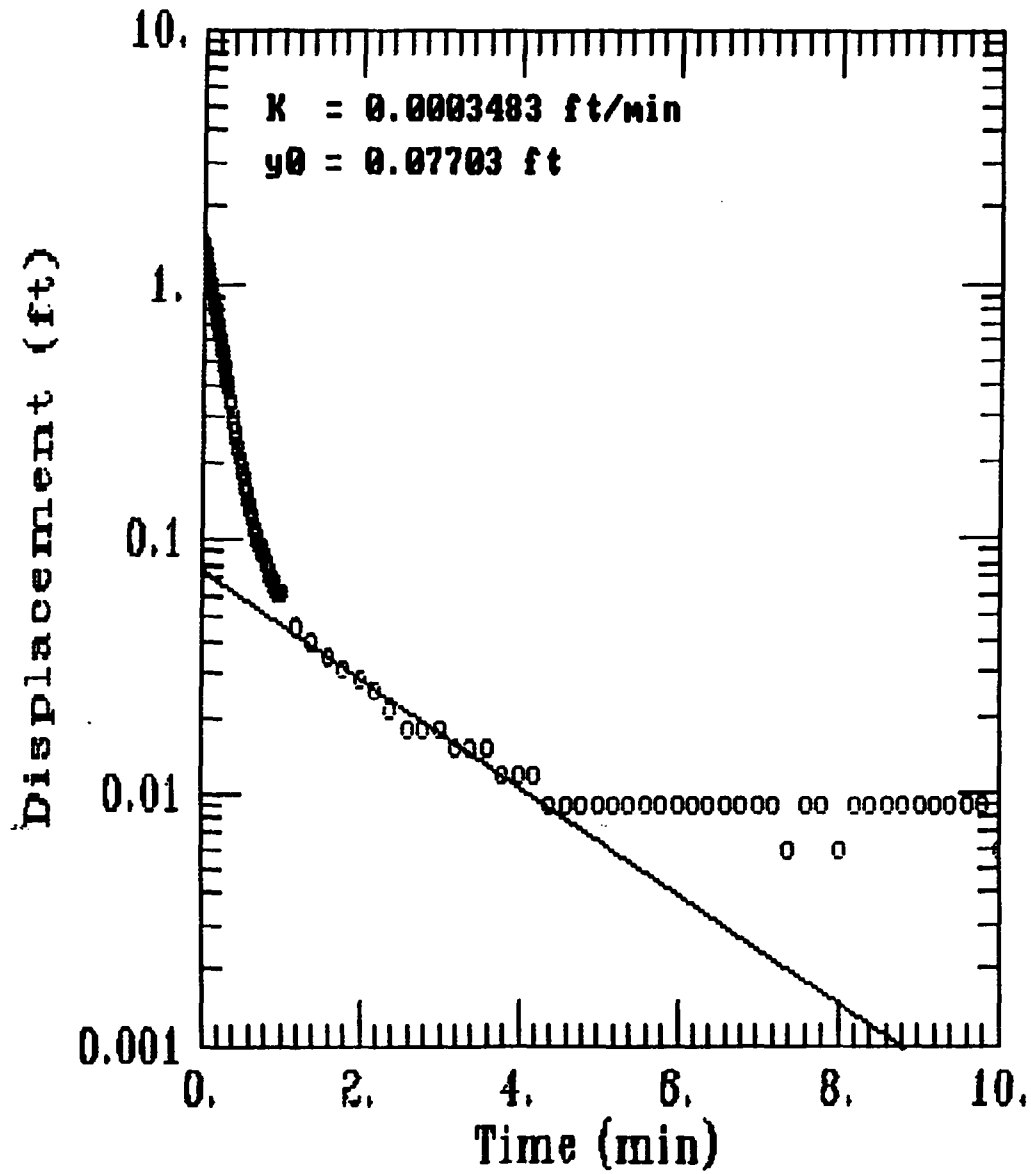
0.2166	0.62	0.62104	-0.0010448	1
0.22	0.61	0.61233	-0.0023283	1
0.2233	0.601	0.60399	-0.0029853	1
0.2266	0.595	0.59576	-0.00075587	1
0.23	0.585	0.58739	-0.0023943	1
0.2333	0.579	0.57939	-0.000391	1
0.2366	0.57	0.5715	-0.0014967	1
0.24	0.563	0.56348	-0.00047566	1
0.2433	0.554	0.5558	-0.0017982	1
0.2466	0.548	0.54823	-0.00022537	1
0.25	0.538	0.54053	-0.0025309	1
0.2533	0.532	0.53317	-0.0011661	1
0.2566	0.526	0.5259	9.8355E-005	1
0.26	0.516	0.51852	-0.0025205	1
0.2633	0.51	0.51146	-0.0014556	1
0.2666	0.504	0.50449	-0.00048694	1
0.27	0.498	0.49741	0.0005936	1
0.2733	0.488	0.49063	-0.0026291	1
0.2766	0.482	0.48394	-0.0019442	1
0.28	0.476	0.47715	-0.001152	1
0.2833	0.469	0.47065	-0.0016507	1
0.2866	0.463	0.46424	-0.001238	1
0.29	0.457	0.45772	-0.0007224	1
0.2933	0.451	0.45149	-0.00048585	1
0.2966	0.444	0.44533	-0.0013343	1
0.3	0.438	0.43908	-0.001084	1
0.3033	0.432	0.4331	-0.0011014	1
0.3066	0.426	0.4272	-0.0012003	1
0.31	0.419	0.4212	-0.0022045	1
0.3133	0.416	0.41547	0.00053452	1
0.3166	0.41	0.4098	0.0001953	1
0.32	0.404	0.40405	-5.3029E-005	1
0.3233	0.397	0.39855	-0.0015477	1
0.3266	0.391	0.39312	-0.0021175	1
0.33	0.388	0.3876	0.0004	1
0.3333	0.382	0.38232	-0.00031888	1
0.35	0.353	0.35668	-0.0036766	1
0.3666	0.332	0.33289	-0.00089244	1
0.3833	0.306	0.31057	-0.0045652	1
0.4	0.288	0.28974	-0.0017354	1
0.4166	0.266	0.27042	-0.0044151	1
0.4333	0.25	0.25228	-0.0022782	1
0.45	0.234	0.23536	-0.0013578	1
0.4666	0.219	0.21966	-0.00066352	1
0.4833	0.206	0.20493	0.0010694	1
0.5	0.194	0.19119	0.0028142	1
0.5166	0.181	0.17844	0.002563	1
0.5333	0.172	0.16647	0.0055309	1
0.55	0.159	0.1553	0.003696	1
0.5666	0.153	0.14495	0.0080521	1
0.5833	0.144	0.13523	0.0087738	1
0.6	0.137	0.12616	0.010844	1
0.6166	0.128	0.11774	0.010256	1
0.6333	0.122	0.10985	0.012153	1
0.65	0.119	0.10248	0.016521	1
0.6666	0.112	0.095646	0.016354	1
0.6833	0.106	0.089231	0.016769	1
0.7	0.103	0.083246	0.019754	1
0.7166	0.097	0.077695	0.019305	1
0.7333	0.097	0.072484	0.024516	1

302743

0.75	0.094	0.067622	0.026378	1
0.7666	0.087	0.063113	0.023887	1
0.7833	0.087	0.05888	0.02812	1
0.8	0.084	0.054931	0.029069	1
0.8166	0.081	0.051268	0.029732	1
0.8333	0.078	0.047829	0.030171	1
0.85	0.075	0.044622	0.030378	1
0.8666	0.072	0.041646	0.030354	1
0.8833	0.072	0.038853	0.033147	1
0.9	0.068	0.036247	0.031753	1
0.9166	0.068	0.03383	0.03417	1
0.9333	0.065	0.031561	0.033439	1
0.95	0.065	0.029444	0.035556	1
0.9666	0.062	0.027481	0.034519	1
0.9833	0.062	0.025638	0.036362	1
1	0.062	0.023918	0.038082	1
1.2	0.046	0.010414	0.035586	1
1.4	0.04	0.0045346	0.035465	1
1.6	0.034	0.0019745	0.032026	1
1.8	0.031	0.00085972	0.03014	1
2	0.028	0.00037434	0.027626	1
2.2	0.025	0.00016299	0.024837	1
2.4	0.021	7.0971E-005	0.020929	1
2.6	0.018	3.0902E-005	0.017969	1
2.8	0.018	1.3455E-005	0.017987	1
3	0.018	5.8588E-006	0.017994	1
3.2	0.015	2.551E-006	0.014997	1
3.4	0.015	1.1108E-006	0.014999	1
3.6	0.015	4.8365E-007	0.015	1
3.8	0.012	2.1059E-007	0.012	1
4	0.012	9.1695E-008	0.012	1
4.2	0.012	3.9926E-008	0.012	1
4.4	0.009	1.7384E-008	0.009	1
4.6	0.009	7.5695E-009	0.009	1
4.8	0.009	3.2959E-009	0.009	1
5	0.009	1.4351E-009	0.009	1
5.2	0.009	6.2488E-010	0.009	1
5.4	0.009	2.7208E-010	0.009	1
5.6	0.009	1.1847E-010	0.009	1
5.8	0.009	5.1584E-011	0.009	1
6	0.009	2.2461E-011	0.009	1
6.2	0.009	9.7799E-012	0.009	1
6.4	0.009	4.2584E-012	0.009	1
6.6	0.009	1.8542E-012	0.009	1
6.8	0.009	8.0734E-013	0.009	1
7	0.009	3.5153E-013	0.009	1
7.2	0.009	1.5306E-013	0.009	1
7.4	0.006	6.6647E-014	0.006	1
7.6	0.009	2.9019E-014	0.009	1
7.8	0.009	1.2636E-014	0.009	1
8	0.006	5.5018E-015	0.006	1
8.2	0.009	2.3956E-015	0.009	1
8.4	0.009	1.0431E-015	0.009	1
8.6	0.009	4.5418E-016	0.009	1
8.8	0.009	1.9776E-016	0.009	1
9	0.009	8.6108E-017	0.009	1
9.2	0.009	3.7493E-017	0.009	1
9.4	0.009	1.6325E-017	0.009	1
9.6	0.009	7.1084E-018	0.009	1
9.8	0.009	3.0951E-018	0.009	1

302744

MW-09 SLUG TEST DATA



302746

[illegible]

(703) 476 - 0335

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[illegible]

A Q T E S O L V R E S U L T S
Version 1.10

11:26:18

```
Data set..... slugmw10.txt
Data set title.... MW-10 SLUG TEST DATA
```

No. of data points.....	175		
Radius of well casing.....	0.083		
Radius of well.....	0.333		
Aquifer saturated thickness.....	2.48		
Well screen length.....	10		
Static height of water in well.....	2.48		
Log(Re/Rw).....	1.63		
A, B, C.....	0.000,	0.000,	1.970

Power-Rice (Unconfined Aquifer Slug Test)

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate	Std. Error
K =	1.5550E-003 +/-	4.2802E-005
y0 =	1.3399E+000 +/-	1.9875E-002

ANALYSIS OF MODEL RESIDUALS

```
residual = calculated - observed
weighted residual = residual * weight
```

Weighted Residual Statistics:

Number of residuals.....	175
Number of estimated parameters....	2
Degrees of freedom.....	173
Residual mean.....	0.02751
Residual standard deviation.....	0.06956
Residual variance.....	0.004839

Model Residuals:

Time	Observed	Calculated	Residual	Weight
------	----------	------------	----------	--------

302748

0.0366	1.331	1.2107	0.12025	1
0.04	1.277	1.1994	0.077599	1
0.0433	1.293	1.1885	0.10451	1
0.0466	1.262	1.1777	0.084322	1
0.05	1.249	1.1666	0.082359	1
0.0533	1.23	1.156	0.073973	1
0.0566	1.218	1.1455	0.07249	1
0.06	1.199	1.1348	0.064225	1
0.0633	1.183	1.1245	0.058549	1
0.0666	1.171	1.1142	0.056779	1
0.07	1.155	1.1038	0.051221	1
0.0733	1.143	1.0937	0.049262	1
0.0766	1.127	1.0838	0.043213	1
0.08	1.114	1.0736	0.04037	1
0.0833	1.102	1.0639	0.038137	1
0.0866	1.089	1.0542	0.034816	1
0.09	1.074	1.0443	0.029695	1
0.0933	1.064	1.0348	0.029196	1
0.0966	1.049	1.0254	0.02361	1
0.1	1.039	1.0158	0.02322	1
0.1033	1.024	1.0065	0.017461	1
0.1066	1.014	0.99738	0.016618	1
0.11	1.002	0.98804	0.013965	1
0.1133	0.989	0.97905	0.0099534	1
0.1166	0.977	0.97014	0.0068603	1
0.12	0.964	0.96105	0.0029523	1
0.1233	0.955	0.9523	0.0026953	1
0.1266	0.942	0.94364	-0.0016411	1
0.13	0.93	0.9348	-0.0047975	1
0.1333	0.92	0.92629	-0.0062932	1
0.1366	0.911	0.91787	-0.0068663	1
0.14	0.898	0.90926	-0.011264	1
0.1433	0.889	0.90099	-0.011992	1
0.1466	0.876	0.8928	-0.016795	1
0.15	0.867	0.88443	-0.017428	1
0.1533	0.858	0.87638	-0.018382	1
0.1566	0.848	0.86841	-0.020409	1
0.16	0.836	0.86027	-0.024271	1
0.1633	0.826	0.85244	-0.026445	1
0.1666	0.817	0.84469	-0.027689	1
0.17	0.808	0.83677	-0.028773	1
0.1733	0.798	0.82916	-0.031161	1
0.1766	0.789	0.82162	-0.032617	1
0.18	0.779	0.81392	-0.034917	1
0.1833	0.77	0.80651	-0.036513	1
0.1866	0.761	0.79918	-0.038176	1
0.19	0.751	0.79169	-0.040686	1
0.1933	0.745	0.78448	-0.039483	1
0.1966	0.736	0.77735	-0.041347	1
0.2	0.726	0.77006	-0.044062	1
0.2033	0.72	0.76306	-0.043056	1
0.2066	0.71	0.75611	-0.046114	1
0.21	0.704	0.74903	-0.045028	1
0.2133	0.695	0.74221	-0.047214	1
0.2166	0.685	0.73546	-0.050461	1
0.22	0.679	0.72857	-0.049569	1
0.2233	0.673	0.72194	-0.048941	1
0.2266	0.664	0.71537	-0.051373	1
0.23	0.657	0.70867	-0.051668	1

302749

0.2333	0.651	0.70222	-0.051221	1
0.2366	0.642	0.69583	-0.053833	1
0.24	0.635	0.68931	-0.054312	1
0.2433	0.629	0.68304	-0.054041	1
0.2466	0.623	0.67683	-0.053827	1
0.25	0.617	0.67048	-0.053484	1
0.2533	0.61	0.66438	-0.054384	1
0.2566	0.604	0.65834	-0.05434	1
0.26	0.595	0.65217	-0.05717	1
0.2633	0.591	0.64624	-0.055237	1
0.2666	0.585	0.64036	-0.055358	1
0.27	0.579	0.63436	-0.055356	1
0.2733	0.573	0.62859	-0.055585	1
0.2766	0.566	0.62287	-0.056867	1
0.28	0.56	0.61703	-0.057029	1
0.2833	0.557	0.61142	-0.054416	1
0.2866	0.551	0.60585	-0.054854	1
0.29	0.544	0.60018	-0.056176	1
0.2933	0.541	0.59472	-0.053716	1
0.2966	0.535	0.58931	-0.054305	1
0.3	0.532	0.58378	-0.051782	1
0.3033	0.526	0.57847	-0.052471	1
0.3066	0.519	0.57321	-0.054209	1
0.31	0.516	0.56784	-0.051837	1
0.3133	0.51	0.56267	-0.052671	1
0.3166	0.507	0.55755	-0.050552	1
0.32	0.504	0.55233	-0.048327	1
0.3233	0.497	0.5473	-0.050302	1
0.3266	0.494	0.54232	-0.048323	1
0.33	0.491	0.53724	-0.04624	1
0.3333	0.488	0.53235	-0.044353	1
0.35	0.466	0.50829	-0.042293	1
0.3666	0.451	0.48545	-0.034454	1
0.3833	0.435	0.46351	-0.028514	1
0.4	0.419	0.44256	-0.023564	1
0.4166	0.407	0.42268	-0.015679	1
0.4333	0.394	0.40358	-0.0095759	1
0.45	0.385	0.38534	-0.0003358	1
0.4666	0.372	0.36802	0.003978	1
0.4833	0.363	0.35139	0.011611	1
0.5	0.357	0.33551	0.021493	1
0.5166	0.347	0.32043	0.026567	1
0.5333	0.341	0.30595	0.03505	1
0.55	0.332	0.29212	0.039878	1
0.5666	0.325	0.279	0.046003	1
0.5833	0.319	0.26639	0.052613	1
0.6	0.313	0.25435	0.058652	1
0.6166	0.306	0.24292	0.063081	1
0.6333	0.303	0.23194	0.07106	1
0.65	0.297	0.22146	0.075542	1
0.6666	0.294	0.21151	0.082493	1
0.6833	0.288	0.20195	0.086052	1
0.7	0.285	0.19282	0.092179	1
0.7166	0.281	0.18416	0.096843	1
0.7333	0.278	0.17583	0.10217	1
0.75	0.272	0.16789	0.10411	1
0.7666	0.269	0.16034	0.10866	1
0.7833	0.266	0.1531	0.1129	1
0.8	0.263	0.14618	0.11682	1
0.8166	0.259	0.13961	0.11939	1

302750

0.8333	0.256	0.1333	0.1227	1
0.85	0.253	0.12727	0.12573	1
0.8666	0.25	0.12156	0.12844	1
0.8833	0.25	0.11606	0.13394	1
0.9	0.247	0.11082	0.13618	1
0.9166	0.244	0.10584	0.13816	1
0.9333	0.241	0.10105	0.13995	1
0.95	0.238	0.096487	0.14151	1
0.9666	0.234	0.092151	0.14185	1
0.9833	0.234	0.087986	0.14601	1
1	0.231	0.08401	0.14699	1
1.2	0.2	0.048282	0.15172	1
1.4	0.175	0.027748	0.14725	1
1.6	0.153	0.015947	0.13705	1
1.8	0.134	0.009165	0.12483	1
2	0.122	0.0052673	0.11673	1
2.2	0.115	0.0030272	0.11197	1
2.4	0.109	0.0017398	0.10726	1
2.6	0.106	0.00099986	0.105	1
2.8	0.106	0.00057463	0.10543	1
3	0.103	0.00033025	0.10267	1
3.2	0.1	0.0001898	0.09981	1
3.4	0.093	0.00010908	0.092891	1
3.6	0.087	6.269E-005	0.086937	1
3.8	0.078	3.6028E-005	0.077964	1
4	0.072	2.0706E-005	0.071979	1
4.2	0.072	1.19E-005	0.071988	1
4.4	0.068	6.8391E-006	0.067993	1
4.6	0.068	3.9305E-006	0.067996	1
4.8	0.068	2.2589E-006	0.067998	1
5	0.068	1.2982E-006	0.067999	1
5.2	0.065	7.4611E-007	0.064999	1
5.4	0.062	4.288E-007	0.062	1
5.6	0.056	2.4644E-007	0.056	1
5.8	0.053	1.4163E-007	0.053	1
6	0.053	8.1397E-008	0.053	1
6.2	0.053	4.678E-008	0.053	1
6.4	0.053	2.6885E-008	0.053	1
6.6	0.056	1.5451E-008	0.056	1
6.8	0.053	8.88E-009	0.053	1
7	0.056	5.1035E-009	0.056	1
7.2	0.056	2.933E-009	0.056	1
7.4	0.053	1.6856E-009	0.053	1
7.6	0.056	9.6876E-010	0.056	1
7.8	0.053	5.5676E-010	0.053	1
8	0.053	3.1998E-010	0.053	1
8.2	0.053	1.839E-010	0.053	1
8.4	0.053	1.0569E-010	0.053	1
8.6	0.053	6.074E-011	0.053	1
8.8	0.056	3.4908E-011	0.056	1
9	0.056	2.0062E-011	0.056	1
9.2	0.053	1.153E-011	0.053	1
9.4	0.053	6.6264E-012	0.053	1
9.6	0.053	3.8083E-012	0.053	1
9.8	0.053	2.1887E-012	0.053	1
10	0.056	1.2579E-012	0.056	1

=====

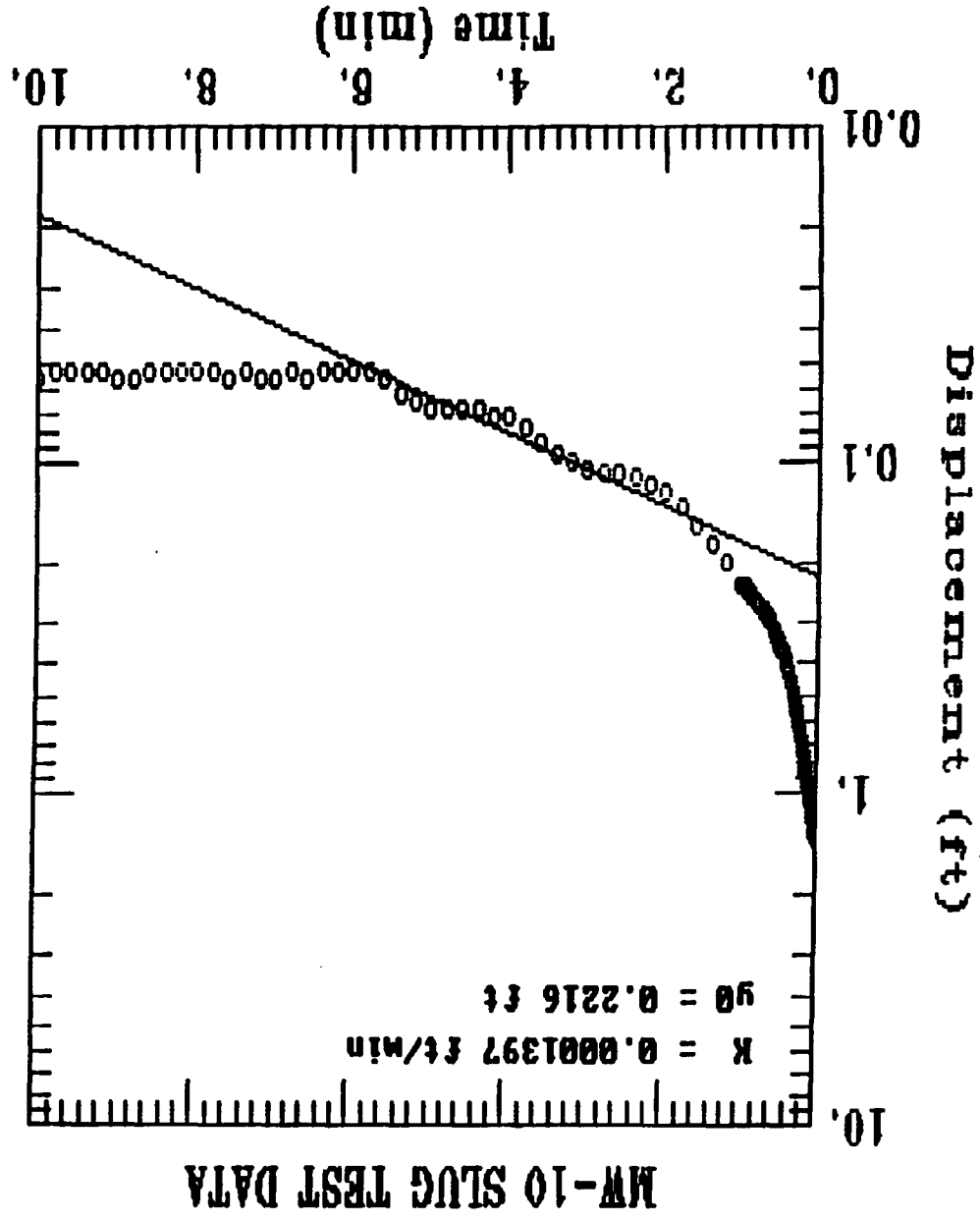
RESULTS FROM VISUAL CURVE MATCHING

302751

[illegible]

302752

302753



APPENDIX F
SAMPLE COLLECTION LOGS

WELL SAMPLING

Date: 2/8/95

Water Level Below TOC: 11.03'

Time of Measurement: 1100

Notes:

Date:

30276

WELL SAMPLING

Date: 2/3/96

Well #: MW-03

Water Level Below TOC: 9.45

Total Depth of Well: 22.15' 137a

Time of Measurement: 1022

Purge/	Method & Equipment (eg. ball, pump, other)

Notes:

[illegible]

A = Feet of water in well = 12.7

B = Feet of sand pack = _____

C = Inner Diameter of Well (ft)

D = Diameter of Borehole (ft) = _____

1 Well Volume = (3.14) * (r^2) * (ft water in well)

1 Well Volume = 1.11 **= cubic feet * 7.481 gals/cubic ft =** 8.31 **gallons**

1 Well Volume = 2.3 gallons

Signed:

Roll

Reviewed:

Date: _____

302757

WELL SAMPLING

Date: 2/8/95

Water Level Below TOC: 4.85 ft

Time of Measurement: 1128

Notes:

Signed:

Date:

302758

WELL SAMPLING

Date: 2/7/95

Water Level Below TOC: 655

Time of Measurement: ↑[illegible][illegible]

D = Diameter of Borehole (ft) = _____

1 Well Volume = 5.6 gallons

Date:

302759

WELL SAMPLING

Date: 2/9/95

Well #: MW-06

Water Level Below TOC: 4.05 ft

Total Depth of Well: 13.70 ft 1370c

Time of Measurement: 0820

Purge/	Method & Equipment (eg. bal, pump, other)

[illegible]
$$r = 2'' = 0.167 \text{ ft}$$

D = Diameter of Borehole (ft) = _____

1 Well Volume = 6.4 gallons

Date:

302760

WELL SAMPLING

Date: 2/9/95

Site Location:

Water Level Below TOC: ~~0.4~~ 5.70

Time of Measurement: ↑ 0915

Purge/	Method & Equipment (eg. bail, pump, other)
1	
2	
3	
4	
5	
6	
7	
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12	
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50	

Notes:

[illegible]

D = Diameter of Borehole (ft) = _____

1 Well Volume = 1.9 **gallons**

Signed:

Reviewed:

Date:

302161

WELL SAMPLING

Date: 2/9/95

Water Level Below TOC: 3.55

Time of Measurement: \uparrow 955

Notes:

Date:

302762

WELL SAMPLING

Date: 2/1/45

Water Level Below TOC: 12 15

Time of Measurement: 1

Purge/	Method & Equipment (eg. bail pump, other)
1	
2	
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4	
5	
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99	
100	

[illegible]

D = Diameter of Borehole (ft) = _____

Well Volume = 0.8 **gallons**

Well

Date:

302763

WELL SAMPLING

Date: 2/9/45

Well #: MW-10

Water Level Below TOC: 10,576

Total Depth of Well: 14.15 ft 13700

Time of Measurement: ↑ 1558

Purge/	Method & Equipment (eg. bail, pump, other)

Notes:

Signed:

SACmd

Reviewed:

Date:

WELL SAMPLING

Date: 2/9/95

(meter reading) = 1524 cuf +

Time of Measurement: ↑ 0720

Notes:

Date:

APPENDIX G
WELL INVENTORY RESULTS

302766



November 29, 1994

State of New Jersey
Department of Environmental Protection and Energy
Bureau of Water Allocation
CN - 426, Third Floor West Wing
Trenton, New Jersey 08625
Attn: Jan Gheen

SUBJECT: WATER WELL RECORD SEARCH

Ma.
Dear Ms. Gheen:

Please provide a copy of all available water well records for a one mile radius around our site which is located on New Albany Road in Moorestown New Jersey. The latitude and longitude for the site are 39° 57' 59" North and 74° 58' 40" West respectively. A site map with the one mile area of interest is included for your reference. Also enclosed is a check for \$230.00 to cover the cost of the search.

Since your well record search directions indicate that the well coordinates are indexed to a state atlas sheet and not to a 7.5-minute series map, please include a copy of the appropriate state atlas sheet so that we may plot the identified wells.

Thank you in advance for your time in processing this request. If you have any questions or if there is any problems in processing this request, please feel free to call me at (412) 934-3744.

Sincerely,

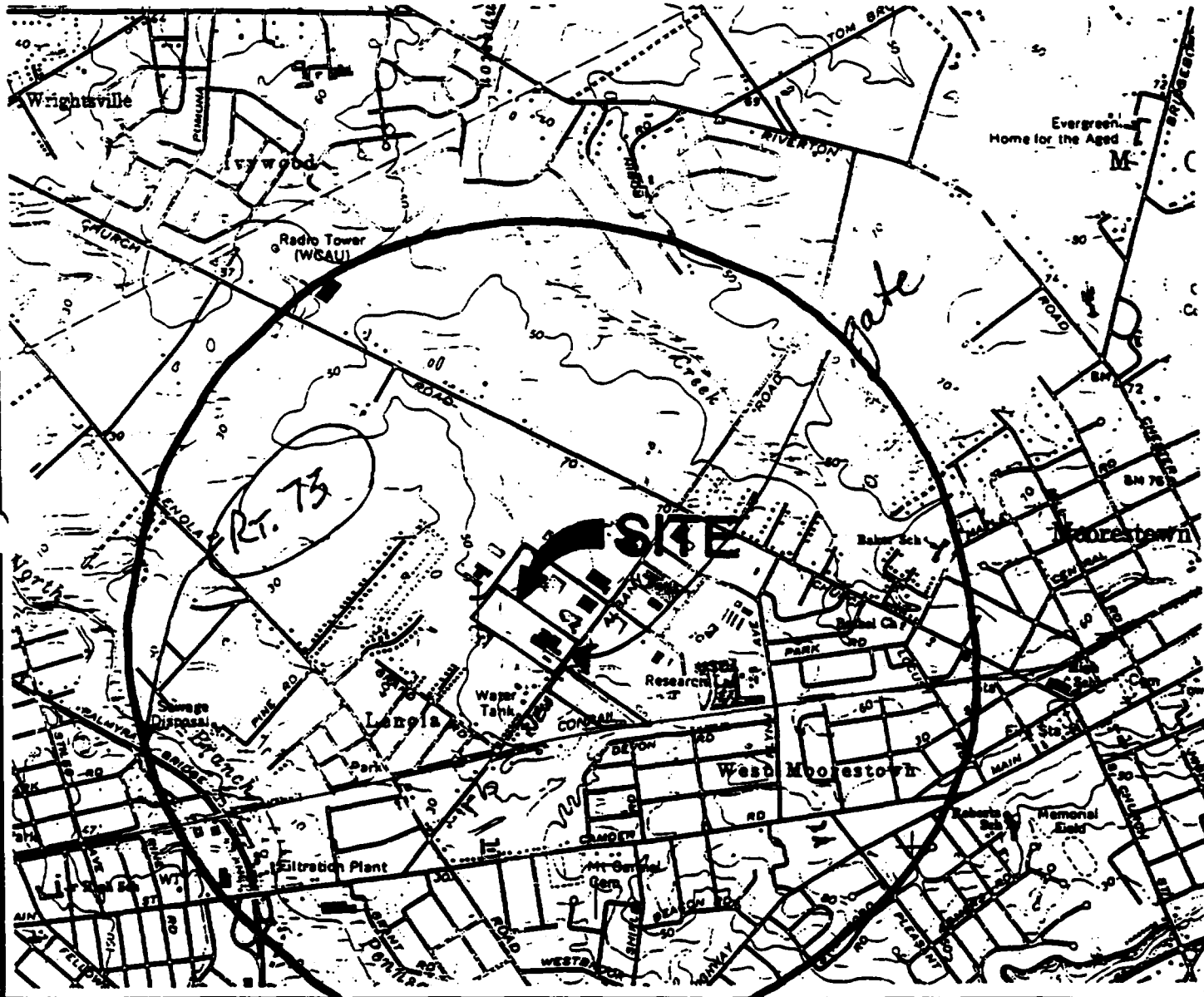
McLAREN/HART

Michael E. Peirson,
Geoscientist

MEP/leb

(PPG0801461VL010)

302767



SCALE 1:24000



PHASE-I INVESTIGATION REPORT



PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA

DRWN: MJM

CHKD:

APPD:

SCALE:

AS SHOWN

DATE: 1-21-94

SITE LOCATION MAP

DRAWING NUM
00-00014

FIGURE

302768



State of New Jersey
Department of Environmental Protection and Energy
Water Supply Element
CN 426
Trenton, NJ 08625-0426
Tel. # 609-292-7219
Fax. # 609-292-1654

Steven P. Nieswand, P.E.
Administrator

The well survey that you have requested includes the wells that are currently contained in the Water Allocation Files which relate to the area in question. Recognizing the fact that not all well records have been submitted, wells installed before 1947 are not included and that there can be errors in location, it is advisable to use this resource as a guide. The Bureau recommends that a field survey of the area in question be performed in order to verify all data. We try to maintain accurate well records; however, well locations are only as accurate as the information supplied by the drilling company. Therefore, we cannot guarantee their reliability. Local Health Departments should also be contacted concerning the locations of wells within their jurisdiction. Please call or write to us in reference to "Well Surveys" at:

New Jersey Department of Environmental Protection and Energy
Bureau of Water Allocation
CN - 426
Trenton, New Jersey 08625

(609) 292-2957

Thank You.

bc/la.survey

302771

31-3-157 ☒

FORM 87

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 31-4846
Application No. _____
County _____

WELL RECORD

1. OWNER JENNINGS BLACK ADDRESS MOORESTOWN, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION _____
3. DATE COMPLETED _____ DRILLER JOHN LIBUCKI
4. DIAMETER: top 4 Inches Bottom 4 Inches TOTAL DEPTH 100 Feet
5. CASING: Type STEEL Diameter 4 Inches Length 95 Feet
6. SCREEN: Type JOHNSON RED BRASS Size of Opening 25 Diameter 3 1/2 Inches Length 5 Feet
Range in Depth { Top _____ Feet Bottom _____ Feet Geologic Formation _____
Tail piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date _____ Yield 15 Gallons per minute
Static water level before pumping 45 Feet below surface
Pumping level 5.5 feet below surface after 4 hours pumping
Drawdown 10 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped SUBMERSIBLE How measured 5 GAL. BUCKET
Observed effect on nearby wells NO
9. PERMANENT PUMPING EQUIPMENT:
Type SUBMERSIBLE Mfrs. Name GOULD
Capacity 10 G.P.M. How Driven ELECTRIC H.P. 1/2 R.P.M. _____
Depth of Pump in well 67 Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR DOMESTIC AMOUNT { Average 75 Gallons Daily
Maximum 100 Gallons Daily
11. QUALITY OF WATER IRONY Sample: Yes _____ No _____
Taste GOOD Odor NONE Color CLEAR Temp. 58 °F
12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA _____
14. DATA OBTAINED BY _____ Date _____

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

Coordinates 31.3.158 ☒
 Permit No. 31-3673
 Owner Campbell Soup Co.
 Address Camden, N.J.
 Driller Artesian Well Drilling
 Logged by D. G. Parrillo
 Date Logged 1/19/60

Depth (feet)	Description	Correlation
0-10	Medium brown glauconitic slightly sandy clay.	<i>H70V</i>
10-19	Same, more sandy.	
19-29	Brownish-black, finely micaceous glauconitic clay.	
29-39	Yellowish-brown, finely micaceous glauconitic clay.	
39-49	Same as 29-39.	
49-56	Dark gray, finely micaceous silty glauconitic clay. Some brown weathering.	
56-64	Light gray, slightly sandy lignitic silt.	
64-74	Medium brownish gray, medium to coarse grained, slightly silty sub-rounded sand. Some lignite present and also some pea sized gravel.	
-76	Medium brownish grey - fine to medium grained sub rounded, slightly lignitic sand.	
76-86	Very light, slightly yellowish white, fine to very coarse gravelly sand. Gravel up to 5/8" - heavy minerals mostly ilmenite - leucoxene with staurolite, tourmaline, zircon, other metamorphics	<i>Khan Tan</i>
86-96	Same, with some white clay balls.	
96-104	Same as 86-96.	
104-114	Very light yellowish grey, very fine sub angular quartz sand - slightly silty - heavy minerals mostly opaques, (60%) rest metamorphics, quite a bit of garnet.	
114-124	Same as above.	
124-134	" " "	
134-140	Light gray, fine to medium grained sub angular quartz sand with scattered coarse sand and fine gravel.	
140-149	Brownish yellow, fine to medium grained sub rounded quartz sand with scattered very coarse sand and fine gravel - coarser grains heavily iron stained. Heavy minerals mostly iron oxides with metamorphics - significant amount of tourmaline and staurolite.	
149-158	Light gray slightly sandy, tough clay.	
158-166	Medium yellow, medium grained sub rounded slightly clayey quartz sand.	

302772

ITT 31-3673

31.3.158
31-3673

- 168-172 Medium yellow coarse to very coarse sub rounded gravelly sand.
Some gravel up to 3/4".
- 172-180 Greyish yellow, moderately sandy blocky clay.
- 180-185 Medium greyish, yellow medium to very coarse slightly clayey
sub rounded gravelly quartz sand.
- 185-193 Greyish yellow clay with much coarse sand and gravel up to 1/4"
- 193-203 Reddish brown clay with much gravel, mostly well rounded quartz.
- 203-213 Same as last.
213-223 " " "
223-232 " " " Less gravel.
- 232-234 Light greyish yellow fine to medium sandy gravel up to 3/4".
Mostly quartz a few chert pebbles - very clean.
- 234-236 Same as last.
236-240 " " "
240-246 " " "
246-250 " " " with a little clay.
- 260- Light brownish gray, medium grained sub angular quartz sand, a
few little gravel but generally very uniform.
- 260-264 Light brownish gray, medium grained sub angular moderately
clayey quartz sand.
- 264- Light brownish gray fine to medium grained moderately clayey
quartz sand.

302773

MONITORING WELL RECORD

Well Permit No. 31 38881
Atlas Sheet Coordinates 31 03 158 ☐OWNER IDENTIFICATION - Owner WGLAM/CBS RADIO INC.
Address CITY LINE AND MONUMENT ROAD
City PHILADELPHIA State PA Zip Code WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County Municipality MOORESTOWN TWP Lot No. 247 Block No. 8
Address TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 4/30/92
Regulatory Program Requiring Well UST Case I.D. # C91-4137 BUSCONSULTING FIRM/FIELD SUPERVISOR (if applicable) McLAREN HART Tele. # 908-647-8111

WELL CONSTRUCTION

Total depth drilled 20 ft.Well finished to 19 ft.

Borehole diameter:

Top 12 in.Bottom 12 in.Well was finished: ☒ above grade
☐ flush mountedIf finished above grade, casing
height (stick up) above land
surface ft.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)	0	4	4"	Sch. 40 P.V.C.
Screen (Note slot size)	4	19	4"	.020 Slot P.V.C.
Tail Piece				
Gravel Pack	3'	19'		#2 Sand
Annular Seal/Grout	0	3'		Cement/Betonite
Method of Grouting				

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 6'6" ft.Water level was measured using Elec. TAPEWell was developed for hours at gpmMethod of development BailingWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Method AUGERDrilling Fluid Type of Rig C.M.E.-55Name of Driller JOHN SNYDERHealth and Safety Plan submitted? ☐ Yes ☒ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. 1123Name of Drilling Company JOHN SNYDER

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

Damp, Brown CLAYEY SILT	4'
TR. F	
Gray Green SANDY SILT	8'
Red Yell SILTY CLAY	10'
Gray BLACK CLAY/SILT	14'
DARK Gray Micaceous SILT	
END of Boring 20	

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.Driller's Signature [Signature]Date 4/30/92

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302774

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

31-3-164

Permit No. 31-4728
Application No. _____
County _____

WELL RECORD

1. OWNER Mrs. MERRITT SHEEDER ADDRESS N CHURCH ST RD 2 MOORESTOWN NJ
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION _____
3. DATE COMPLETED 8-8-64 DRILLER JOHN LIBUCKI
4. DIAMETER: top 4 Inches Bottom 4 Inches TOTAL DEPTH 145 Feet
5. CASING: Type STEEL Diameter 4 Inches Length 140 Feet
6. SCREEN: Type RED BRASS Size of Opening 20 Diameter 4 Inches Length 5 Feet
Range in Depth { Top _____ Feet
Bottom _____ Feet Geologic Formation CLAY + MARL
Tail piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 8-7-64 Yield 15 Gallons per minute
Static water level before pumping 75 Feet below surface
Pumping level 85 feet below surface after 4 hours pumping
Drawdown 10 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped SUBMERSIBLE How measured 50 GAL DRUM
Observed effect on nearby wells NONE
9. PERMANENT PUMPING EQUIPMENT:
Type SUBMERSIBLE Mfrs. Name GOULD
Capacity 10 G.P.M. How Driven ELEC. H.P. 1/2 R.P.M. _____
Depth of Pump in well 90 Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR DOMESTIC AMOUNT { Average 60 Gallons Daily
Maximum 80 Gallons Daily
11. QUALITY OF WATER IRONY Sample: Yes _____ No _____
Taste IRONY Odor NONE Color CLEAR Temp. 58 °F
12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA _____
14. DATA OBTAINED BY _____ Date _____

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302775

**DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD**

Permit No. _____

Application No. _____

County _____

31.03.165
3/1/84

1. OWNER William E. Grossman ADDRESS Palmyra, N. J.
Owner's Well No. I SURFACE ELEVATION 45 Feet
(Above mean sea level)
2. LOCATION Back of his new house off Lanola Road
3. DATE COMPLETED Nov. 3, '53 DRILLER Haines & Moore
4. DIAMETER: Top 4 Inches Bottom 4 Inches TOTAL DEPTH 46 Feet
5. CASING: Type bl. steel pipe Diameter 4 Inches Length 32 Feet
6. SCREEN: Type slotted Size of Opening 20 Diameter 3-3/4 Inches Length 6 Feet
Range in Depth { Top 39 Feet Geologic Formation _____
Bottom 45 Feet
Tail piece. Diameter 3 Inches Length I Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date Nov. 3, '53 Yield 20 Gallons per minute
Static water level before pumping 20 Feet below surface
Pumping level 25 feet below surface after 3 hours pumping
Drawdown 5 Feet Specific Capacity 4 Gals. per min. per ft. of drawdown
How Pumped with well machine How measured time to fill a container
Observed effect on nearby wells none
9. PERMANENT PUMPING EQUIPMENT:
Type Jet Capacity 9 Gallons per minute
How Driven Electric motor Horse Power 1/2 R.P.M. 3450
Depth of pump in well 25 Feet Depth of Foot piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR new home
AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No. *
Taste good Odor none Color clear Temperature 56 °F
12. LOG _____ Are samples available? No
(Give details on back of sheet or on separate sheet)
13. SOURCE OF DATA Well drillers record
14. DATA OBTAINED BY Earl L. Moore DATE Nov. 9, 1953

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302776

**DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD**

Permit No. 31 1058

Application No. _____

County _____

313.174 ☐

1. OWNER Richard H. Murphy ADDRESS Haddon Heights, N. J.
Owner's Well No. 1 SURFACE ELEVATION 30 Feet
(Above mean sea level)
2. LOCATION East end of his new house on N. Lenola Road
3. DATE COMPLETED July 10, 1953 DRILLER Haines & Moore
4. DIAMETER: Top 4 Inches Bottom 4 Inches TOTAL DEPTH 70 Feet
5. CASING: Type bl. steel pipe Diameter 4 Inches Length 60 Feet
6. SCREEN: Type slotted Size of Opening 20 Diameter 3 3/4 Inches Length 6 Feet
Range in Depth { Top 63 Feet Geologic Formation Maritan Sand
Bottom 69 Feet
Tail piece. Diameter 3 Inches Length 1 Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date July 10, 1953 Yield 20 Gallons per minute
Static water level before pumping 22 Feet below surface
Pumping level 26 feet below surface after 2 hours pumping
Drawdown 4 Feet Specific Capacity 5 Gals. per min. per ft. of drawdown
How Pumped with well machine How measured Time to fill a container
Observed effect on nearby wells no nearby wells
9. PERMANENT PUMPING EQUIPMENT:
Type Jet Capacity 9 Gallons per minute
How Driven Electric motor Horse Power 1/4 R.P.M. 3450
Depth of pump in well 35 Feet Depth of Foot piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR new home AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No. *
Taste irony Odor none Color clear Temperature 56 °F
12. LOG _____ Are samples available? no
(Give details on back of sheet or on separate sheet)
13. SOURCE OF DATA Well drillers record
14. DATA OBTAINED BY Earl L. Moore DATE July 18, 1953

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302777

31-3 181

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 31-5202
Application No. _____
County _____

WELL RECORD

1. OWNER CITY OF MOORESTOWN, N.J. ADDRESS NO. CHURCH STREET - MOORESTOWN, N.J.
Owner's Well No. TEST WELL SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION NO. CHURCH STREET - MOORESTOWN, N.J. BURLINGTON COUNTY
3. DATE COMPLETED 2-20-68 DRILLER LAYNE-NEW YORK CO. INC
4. DIAMETER: top 8" inches Bottom 8" inches TOTAL DEPTH 385' Feet
5. CASING: Type 8" BLACK STEEL PIPE Diameter 8" inches Length 375' Feet
6. SCREEN: Type SHUTTER STAINLESS Size of Opening .080" Diameter 8" inches Length 10' Feet
Range in Depth { Top 375' Feet " ALL MATERIAL REMOVED "
Bottom 385' Feet Geologic Formation _____
Tail piece: Diameter NONE inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 3-5-68 Yield 316 Gallons per minute
Static water level before pumping 50' Feet below surface
Pumping level 65' feet below surface after 8 HRS hours pumping
Drawdown 15' Feet Specific Capacity 21. Gals. per min. per ft. of drawdown
How Pumped VERTICAL TURBINE PUMP How measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type NO PERMANENT PUMP Mfrs. Name NONE
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pum: in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR TEST WELL AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No. _____
Taste _____ Odor _____ Color _____ Temp. _____ °F
12. LOG SEE REVERSE SIDE Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA LAYNE-NEW YORK CO. INC - 1250 W. ELIZ AVE - LINDEN, N.J. 07035
14. DATA OBTAINED BY LAYNE-NEW YORK CO. INC. Date OCTOBER 23, 1970

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302778

31-03.181.
31-5262

LOG OF WELL

0'-1' - TOP SOIL
1'-7' - BROWN CLAY AND GRAVEL
7'-24' - GREY AND BROWN CLAY
24'-45' - GREY CLAY
45'-60' - GREY SAND AND GRAVEL
60'-72' - GREY SAND AND GRAVEL, STREAKS OF CLAY
72'-80' - SAND AND GRAVEL, STREAKS OF CLAY
80'-100' - COARSE SAND
100'-115' - WHITE CLAY
115'-117' - COARSE SAND
117'-150' - GREY SAND, STREAKS OF CLAY
150'-162' - WHITE CLAY AND SAND
162'-185' - BROWN SAND STREAKS OF RED AND WHITE CLAY
185'-197' - SAND AND CLAY STREAKS
197'-206' - COARSE SAND
206'-208' - CLAY
208'-215' - COARSE SAND
215'-232' - SANDY CLAY
232'-235' - CLAY
235'-249' - COARSE SAND, CLAY STREAKS
249'-255' - CLAY
255'-275' - GREY SAND AND GRAVEL, SANDY CLAY STREAKS
275'-295' - BROWN SAND AND GRAVEL, STREAKS OF WHITE CLAY
295'-317' - SANDY CLAY
317'-370' - COARSE SAND
370'-385' - HEAVY GRAVEL

31-3-183 ☒

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

Permit No. 31-5715
Application No. _____
County _____

WELL RECORD

1. OWNER Campbell Soup Company ADDRESS Moorestown, New Jersey
Owner's Well No. 3 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Church Road, Moorestown, New Jersey
3. DATE COMPLETED December, 1971 DRILLER A.C. Schultes & Sons, Inc.
4. DIAMETER: top 10" inches Bottom 10" inches TOTAL DEPTH 372'-0" Feet
5. CASING: Type Steel Diameter 10" inches Length 335'-0" Feet
6. SCREEN: Type S.S.W.W. Size of Opening .060" Diameter 10" inches Length 30'-0" Feet
Range in Depth { Top 339'-0" Feet
Bottom 369'-0" Feet Geologic Formation Patitan
Tail piece: Diameter 10" inches Length 3'-0" Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water Flows to _____ Feet above surface
8. RECORD OF TEST: Date December, 1971 Yield 602 Gallons per minute
Static water level before pumping 59'-8" Feet below surface
Pumping level 90'-11" feet below surface after 8 hour _____ hours pumping
Drawdown 31'-3" Feet Specific Capacity 19.2 Gals. per min. per ft. of drawdown
How Pumped Vertical Turbine How measured Orifice
Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
Type Vertical Turbine Pump Mfrs. Name Fairbanks Morris
Capacity 500 G.P.M. How Driven Electric H.P. 40 R.P.M. 1800
Depth of Pump in well 140' Feet Depth of Footpiece in well None Feet
Depth of Air Line in well 141' Feet Type of Meter on Pump _____ Size 6' inches
10. USED FOR Air Condition AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER Good Sample: Yes _____ No _____
Taste None Odor none Color None Temp. 58° °F
12. LOG See Attached Are samples available? None
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Drillers Log
14. DATA OBTAINED BY A.C. Schultes & Sons, Inc. Date December 1971

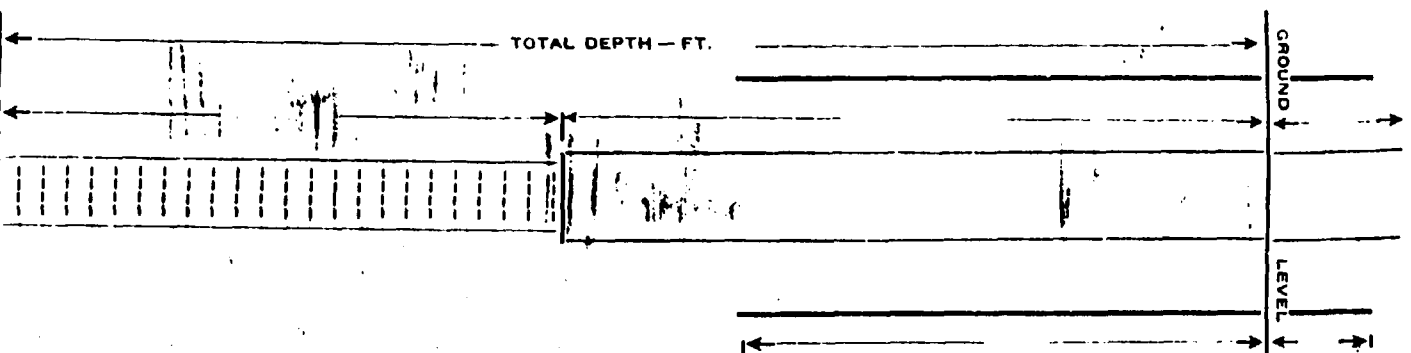
(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302780

A.C. SCHULTES & SONS, INC.

GRAVEL PACKED WELL

31-3-183
31-5-715



WELL LOG	FEET FROM GROUND SURFACE	NAME OF OWNER
Brown sanish clay	3 TO 13	Campbell Soup Co.
Gray clay	13-44	Moorestown Plant No. 2 Location Equipment Center
White sand & gravel	44-48	Well No.
Lt. gray clay	48-53	Job No. 8599
White sand & gravel	53-82	Test Pumped (Hrs.) 8
Coarse gray sand & gravel	82-102	Capacity G.P.M. 602
Fine white sand & small stones	102-112	Static Level (Rotary Table) 59'8"
Coarse sand & gravel streaks of white clay	112-129	Pumping Level (Rotary Table) 90'11"
White clay	129-134	Specific Capacity 19.0
Fine to medium white sand	134-135	Diameter of Outer Casing 16"
Iron colored sand med. to coarse	135-144	Diameter of Inner Casing 10"
White clay	144-165	Depth of Well (Rotary Table) 375'
Fine to coarse brown sand & gravel	165-171	Depth to R.L. Nipple (Rotary Table) None
White & brown clay	171-172	Gravel Size 235' #3
Fine to medium brown sand	172-185	Length of Outer Casing 335'
White & brown clay	185-187	Length of Inner Casing and Screen 372'
Coarse sand & gravel small stones	187-193	Underream Size 30'
White & brown clay	193-202	Screen Material S.S.
Fine-med. brown sand	202-206	Screen Mfg. Johnson
Brown & red clay	206-208	Size of Screen (Dia.) <input type="checkbox"/> Telescope <input checked="" type="checkbox"/> Pipe Size 10"
Gray clay	208-222	Length of Screen 30'
White clay	222-225	Top Screen Fitting T & C
Coarse brown sand & gravel, stones	225-230	Bottom Screen Fitting T & C
Light brown clay	230-235	Slot Size .060
Lt. brown sand & gravel	235-253	Bags of Cement 1000
Fine sand to coarse gravel	235-264	Drilling Machine Wilson Rig
White clay	264-274	Date Well Completed 12/15/71
Med-coarse gravel	274-280	Driller Wm. Jester

* Rotary Table approx. 3' above original ground level

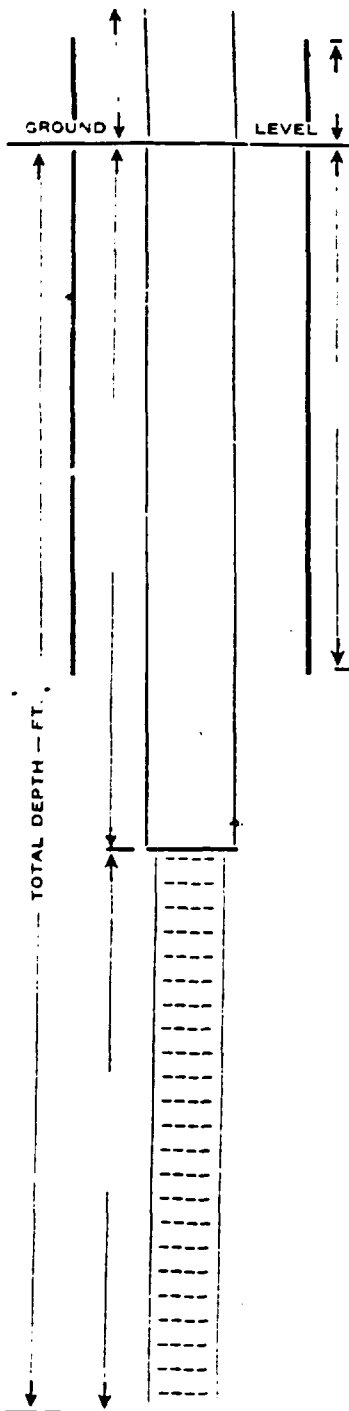
302781

A.C. SCHULTES & SONS, INC.

GRAVEL PACKED WELL

31-5715
31-3-183

Page 2



WELL LOG	FEET FROM GROUND SURFACE	NAME OF OWNER
	0 TO	Campbell Soup Co.
White clay	280-285	Location Moorestown
Med coarse gravel	285-306	Well No.
White clay	306-308	Job No. 8599
Medium to coarse sand & gravel	308-322	Test Pumped (Hrs.)
Iron colored clay	322-331	Capacity G.P.M.
Coarse gravel	331-334	Static Level (Rotary Table)
White clay	334-335	Pumping Level (Rotary Table)
Coarse gravel to big stones	335-355	Specific Capacity
Stones, rocks, boulders	355-371	Diameter of Outer Casing
White & gray clay, Streaks of gravel	371-395	Diameter of Inner Casing
		Depth of Well (Rotary Table)
		Depth to R.L. Nipple (Rotary Table)
		Gravel Ground Size
		Length of Outer Casing
		Length of Inner Casing and Screen
		Underream Size
		Screen Material
		Screen Mfg.
		Size of Screen (Dia.) <input type="checkbox"/> Telescope <input type="checkbox"/> Pipe Size
		Length of Screen
		Top Screen Fitting
		Bottom Screen Fitting
		Slot Size
		Bags of Cement
		Drilling Machine
		Date Well Completed
		Driller



MONITORING WELL RECORD

Well Permit No. 31 - 37328
Atlas Sheet Coordinates 31 : 03 : 184

OWNER IDENTIFICATION - Owner PENNSAUKEN TOWN HALL/UTIL
Address 5805 NORTH CRESCENT BLVD.
City PENNSAUKEN State NJ Zip Code 08110

WELL LOCATION - If not the same as owner please give address. Owner's Well No. 1B
County Camden Municipality PENNSAUKEN TWP Lot No. 3.0 Block No. 110
Address Berthel Avenue

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 8 / 29 / 91
Regulatory Program Requiring Well ECRA Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) CDM Tele. # 1-617-252-8765

WELL CONSTRUCTION

Total depth drilled 105 ft.

Well finished to 105 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 91.06 ft.

Water level was measured using M Scope

Well was developed for 1.5 hours at 5 gpm

Method of development Submersible Pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: Mud Rotary

Drilling Method Mud Rotary

Drilling Fluid Bentonite Mud Type of Rig Reichdrill 650

Name of Driller Dennis Wene

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 0931

Name of Drilling Company SAMUEL STOTHOFF CO., INC.

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	95	4	Schedule 40 PVC
Outer Casing (Not Protective Casing)	-	-	-	-
Screen (Note slot size)	95	105	4	Schedule 40 PVC .020 slot
Tail Piece	-	-	-	-
Gravel Pack	93	105	-	Sterilized Gravel
Annular Seal/Grout	90	93	-	Bentonite Pellets
	0	90	-	Portland Cement
Method of Grouting	Pressure Grout w/Tremie Line			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0'-104.5 - Fine to coarse sand with
occassional clay layers
and gravel layers.
104.5'-105'- Very stiff red and
grey clay

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Dennis Wene

Date 12/9/91

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302783



New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 - 37329
Atlas Sheet Coordinates 31 : 03 : 184

OWNER IDENTIFICATION - Owner PENNSAUKEN TOWN HALL/ATTL.
Address 5605 NORTH CRESCENT BLVD.
City PENNSAUKEN State NJ Zip Code 08110

WELL LOCATION - If not the same as owner please give address. Owner's Well No. 1A
County Camden Municipality PENNSAUKEN TWP Lot No. 3-0 Block No. 110
Address Bethel Avenue

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 8 / 29 / 91
Regulatory Program Requiring Well RCRA Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) CDM Tele. # 1-617-252-8765

WELL CONSTRUCTION

Total depth drilled 145 ft.

Well finished to 145 ft.

Borehole diameter:

Top 12 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface - ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 92.71 ft. *9/29/91

Water level was measured using M-Scope

Well was developed for 3 hours at 10 gpm

Method of development Submersible pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method Mud Rotary

Drilling Fluid Bentonite Mud Type of Rig Reichdrill 650

Name of Driller Dennis Wene

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 0931

Name of Drilling Company SAMUEL STOTHOFF CO., INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	135	4	Schedule 40 PVC
Outer Casing (Not Protective Casing)	0	112	8	Schedule 40 steel
Screen (Note slot size)	135	145	4	Schedule 40 PVC .010 slot
Tail Piece	-	-	-	-
Gravel Pack	133	145	-	Sterilized Gravel
Annular Seal/Grout	130	133	-	Bentonite Pellets Portland Cement
Method of Grouting	0	112	-	Portland Cement Pressure Grout w/Tremie Line

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

Attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Dennis Wene

Date

10/9/91

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302784

CAR, DIRECTOR
Soil Borings

Permit # 31-37329
Landed # 31:03:184

ONE CENTIN PLAZA, BOSTON, MASSACHUSETTS 02108
Well Installation and Completion Data

Client Candler City

Site Pennsylvania, NJ Job No. 1767-2 Surveyed Elevation ground

Date Drilled Feb. 1/71 Well No. 10 Boring Co. STURNOFF COMPANY Top of Casing Screen Length

Total Depth 145 ft. Boring Method Used for Mud Rotary Pleasometer Casing Size & Type 4" Self 40 PVC

Field Geologist J. Pickens Organic Vapor Instruments Used 0.74VOM Water Table Depth

Depth (feet)	Sam. No.	Blow per 6' lbs.	Sample Interval	Adv. / Recov.	Org. Vap. PPM	Sample Description	Strata. Change
0							
5	1		5-7	2/2	0	Brown to grey, mottled fine sand with some silt and trace of clay	
10	2		10-12	1/1	0	0.7' Grey, silt, clay with thin, fine sand laminations 0.3' Dark red, fine sand. (iron cemented). consolidated to partially consolidated	Fine to coarse sand clay layers
15	3		15-17	2/1	0	Orange to light brown, well sorted, fine sand	
20	4		20-22	2/2	0	0.6' Grey, silt and clay 1.4' Orange fine sand and silt w/ trace of clay.	
25	5		25-27	2/2	0	1.3' Brown, fine to coarse sand w/ thin trace of clay and silt. (S) 1 inch thick clay lenses. 0.3' Grey clay, V. silty 0.4' Grey well sorted sand.	
30	6		30-32	2/2	1/3	0 Brown to grey, fine to med. sand with trace of silt. 0.9' thick layer of grey clay separates sand top and bottom of sample	

Remarks:

302785

CHS. DEED. 1961. Permit # 31-37329
 Soil Section Log
 Loc. 1000D, # 31-03-184

ONE CENTIN PLATS, SOUTH, MASSACHUSETTS 02108
 Well Installation and Completion Data

Client Camden City also Pennsauken NJ Job No. 1767-2 Surveyed Elevation Ground _____
 Date Drilled 8/26/82 Well No. 1767-2 Drilling Co. Shelton G. Inc. Top of Casing _____ Screen Length _____
 Total Depth 145'-4" Logging Method Used 8" Mud Rotary Pileometer Casing Size & Type 4" 56' 40 PVC
 Field Geologist J. P. Fickens Organic Vapor Instruments Used 107000000 Water Table Depth _____

Depth (feet)	Sample No.	Blows per 6" Int.	Sample Interval	Adv. / Recv.	Org. Vap.	Sample Description	Strata. Change
30						Brown to grey, fine to coarse sand with occasional thin layers of black organic material, well sorted.	
35	7		35-37	1 1/2' / 108		well sorted Brown, med to coarse sand with occasional coarse gravel larger.	fine to coarse sand and trace of silt.
40	8		40-42	3/2			Oxidized gravel layer.
45	9		45-47	4/2		0.5' Grey fine to coarse sand with trace of silt. 0.1' Grey clay with trace of fine sand. 1.15' Light brown, well sorted medium sand with one, 1/8" gravel larger.	
50	10		50-52	2/2		Grey, fine to medium sand with trace of clay and silt.	
55	11		55-57	2/113		Light brown to orange, well sorted, fine to medium sand. Very light.	
60	12		60-62	1/1		0.5' Grey, well sorted fine to coarse sand with some silt and trace of clay. 0.5' Grey, well sorted fine sand.	

Remarks:

302786

Permit # 31-37329

ONE CENTER PLAZA, BOSTON, MASSACHUSETTS 02108

31-03-184

Well Installation and Completion Data

Client Camden City

Site Tennsauken NJ Job No. 1767-2 Surveyed Elevation Ground

Date Drilled 8/26/82 Well No. MW-1A Boring Co. S. Stahl & Co., Inc. Top of Casing Screen Length

Total Depth 107.5 Boring Method Used 8 Mud Rotary Piezometer Casing Size & Type 4" Sch 40 PVC

Field Geologist J. Pickens Organic Vapor Instruments Used 10.7 eVVM Water Table Depth

Depth (feet)	Sam. No.	Blows per 6'	Sample Interval	Adv./Recur.	Org. Vap. ppm	Sample Description	Strata Change
60							
65	13		65-67	1.3 / 1.3	0	Grey, well sorted fine sand. Some remaining (Damp)	Fine to medium sands w/ trace of clay
70	14		70-72	2.0 / 1.5	0	Light brown, fine to medium sand. Graded, with coarse sand and gravel base (wet)	
75	15		75-77	1.3 / 1.3	0	Grey to brown fine to medium sand w/ trace of silt toward grey top. 1" Gravel layer toward base (wet)	
80	16		80-82	2.0 / 1.4	0	Grey, grading into orange fine to medium sand with trace of coarse	Orange grading into grey poorly sorted, ungraded medium to coarse sand with little gravel. Trace of silt & clay. (wet)
85	17		85-87	1.2 / 1.2			
90	18		90-92	0.9 / 0.8		Light brown, well sorted medium sand. Trace of coarse. (wet)	

Remarks:

302787

ONE CENTER PLAZA, BOSTON, MASSACHUSETTS 02108
 Well Installation and Completion Data

2m. + # 31.37329
 31.03.184

Client: Camden City
 Date drilled: 8/29/82 Well No. MAV-1
 Boring Co. S. Stiff Co. Top of casing
 Screen Length
 Total Depth 145'
 Boring Method Used 8" Mud Rotary
 Field Geologist J. Pickens
 Organic Vapor Instruments Used 10.2 L CVM
 Water Table Depth

Depth (feet)	Sample No.	Blows per 6" Interval	Sample Interval	Adv./ Recov.	Org. Vap. ppm	Sample Description	Strata Change
40						Light brown, medium to coarse sand with trace of illite	
45	19		95-97	2.9	1.6	coarse sand and gravel (cut)	coarse sand and gravel
95						encountered clay at 104.5 ft.	
100	20		106-107	2.7		Red and grey (mottled) clay. Very stiff + dry.	V. stiff grey clay
105						Very stiff red and grey clay.	
110						1.7' Red + grey (mottled) clay. Very stiff with some clay.	
115	21		115-117	2.2		0.5 Gray fine sand and silt with some clay.	
120						5 ft. silt with some clay	

Remarks:

302788



MONITORING WELL RECORD

Well Permit No. 31 - 35504
Atlas Sheet Coordinates 31 : 03 : 185

OWNER IDENTIFICATION - Owner U.S. POSTAL SERVICE
Address EAST SECOND STREET & CHESTER A
City MOORESTOWN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW #1
County Municipality MOORESTOWN TWP Lot No. 27A Block No. 266
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 2 / 25 / 91
Regulatory Program Requiring Well UST Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) WESTON Tele. # (215) 430-3135

WELL CONSTRUCTION

Total depth drilled 24 ft.

Well finished to 24 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing height (stick up) above land surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling ft.

Water level was measured using METER

Well was developed for hours at gpm

Method of development PUMPING

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity gpm

Pump type:

Drilling Method AUGER

Drilling Fluid NONE Type of Rig Mobil B-61

Name of Driller MARTY VERGARA

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. J1477

Name of Drilling Company B. J. MYKES HIRSH, INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	14	4	PVC SCH 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	14	24	4	PVC SCH 40 .02
BENTONITE Tail Piece	12	14		PELLETS
Gravel Pack	14	24		MORIE GRAVEL
Annular Seal/Grout	0	12		PORTLAND I
Method of Grouting	PRESSURE GROUT			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0-1 Blacktop + Ballast
1-3 DK. Brown Silty Clay
3-9 Lt. Brown Silty Clay
9-10 DK. Brown Silty Sand
10-11 Orange brown Silty sand
11-13 Lt brown sand
13-19 Orange brown sand
19-24 DK. brown coarse sand
(wet) some clay

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Martin Vergara Date 4-17-91



MONITORING WELL RECORD

Well Permit No. 31 - 36133
Atlas Sheet Coordinates 31 : 03 : 185

OWNER IDENTIFICATION - Owner U.S. POSTAL SERVICE
Address E. SECOND ST. & CHESTER AVE.
City MOORESTOWN State NI Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW #2
County _____ Municipality MOORESTOWN TWP Lot No. 27A Block No. 286
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 4 / 15 / 91
Regulatory Program Requiring Well UST Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Roy F. Weston Tele. # 215-430-7294

WELL CONSTRUCTION

Total depth drilled 28 ft.

Well finished to 28 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling _____ ft.

Water level was measured using METER

Well was developed for _____ hours at _____ gpm

Method of development PUMPING

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AUGER

Drilling Fluid NONE

Type of Rig MOBILE B-61

Name of Driller DENNIS MOORE

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J1471

Name of Drilling Company GREGG MYERS

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	13	4	PVC SCH 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	13	28	4	PVC SCH 40 .02
BENTONITE Tail Piece	11	13		PELLETS
Gravel Pack	13	28		MORIE GRAVEL
Annular Seal/Grout	0	11		PORTLAND I
Method of Grouting	PRESSURE GROUT			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-1 ASPHALT
1-10 TAN FINE COARSE SANDS
10-17 BURNT CRANGE SANDS
17 HIT FIRST WATER
17-26 - CRANGE SAND
26-28 SILTY GRAY CLAY

WELL SEALED 6/29/92

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Dennis Moore

Date 5/91

New Jersey Department of Environmental Protection
Division of Water Resources

WELL SEALED

2-26-94

MONITORING WELL RECORD

Well Permit No. 31-32280
Atlas Sheet Coordinates 31 : 03 : 186

OWNER IDENTIFICATION - Owner WITTENBERG ENVIRONMENTAL CORP.

Address LAUREL CORP. CENTER PO BOX

City MT. LAUREL

State NJ

Zip Code

WELL LOCATION - If not the same as owner please give address.

Owner's Well No. MW#1

County

Municipality

Lot No.

Block No.

Address

TYPE OF WELL (as per Well Permit Categories)

Date well completed 11/22/79

Regulatory Program Requiring Well

Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable)

WITTENBERG ENVIRONMENTAL (B. BAIRD)

Tele. # 202-542-1964

WELL CONSTRUCTION

Total depth drilled 19 ft.

Well finished to 19 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing height (stick up) above land surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 11 ft.

Water level was measured using METER

Well was developed for 5 hours at gpm

Method of development AIR LIFT

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity gpm

Pump type:

Drilling Method AUGER

Drilling Fluid Type of Rig Mobil Drill

Name of Driller Gregg Myers

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. T1472

Name of Drilling Company GRIGGS MYERS

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	8	4	Sch 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	8	9	4	Sch 40 PVC .02
Tail Piece				
Gravel Pack	9	9		#2 Mink Gravel
Annular Seal/Grout	7	7		BELOWITE FILLERS
Method of Grouting	slurry			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0 - 19 SAND
YELLOW TO BROWN

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable rules and regulations.

Driller's Signature

Date 11/28/89

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302792

New Jersey Department of Environmental Protection
Division of Water Resources

WELL SEALED 2-26-94

MONITORING WELL RECORD

Well Permit No. 31 - 32381
Atlas Sheet Coordinates 31 : 02 : 125

OWNER IDENTIFICATION - Owner LAUREL ENTERPRISES LTD
Address LAUREL CORP CENTER RD SUITE
City MT. LAUREL State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MLW #2
County Municipality MT. LAUREL TWP Lot No. Block No. 2143
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 11/22/89
Regulatory Program Requiring Well Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) DUPONT ENVIRONMENTAL (3 BARR) Tele. # 800-544-1964

WELL CONSTRUCTION

Total depth drilled 15 ft.

Well finished to 15 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing height (stick up) above land surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 11 ft.

Water level was measured using WATER

Well was developed for 5 hours at gpm

Method of development AIR LIFT

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity gpm

Pump type:

Drilling Method AUGER

Drilling Fluid Type of Rig Mobil Drill

Name of Driller Gregg Myers

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J1472

Name of Drilling Company GRIGG MYERS

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	5	4	Sch 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	5	15	4	Sch 40 PVC .02
Tail Piece				
Gravel Pack	5	15		#2 MARI GRVEL
Annular Seal/Grout	4	5		BENTONITE PORTLANDT
Method of Grouting	SLURRY			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0-15 SAND
YELLOW TO RUNNING

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Gregg Myers Date 11/24/89

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302793

MONITORING WELL RECORD

WELL SEALED 2-24-94

Well Permit No. 31 - 42128
Atlas Sheet Coordinates 31 : 03 : 188

OWNER IDENTIFICATION - Owner HOLLY DESIGN & DISPLAYS
Address 1701 RTE. 70 E.
City CHERRY HILL State NJ Zip Code 08034

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-101
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 21 A Block No. 202
Address 300 Crider Avenue, Moorestown, NJ 08057

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 8 / 11 / 93
Regulatory Program Requiring Well ECRA Case I.D. # 92183

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Brinkerhoff Environmental Svcs. Tele. # 908-920-2885

WELL CONSTRUCTION

Total depth drilled 15 ft.

Well finished to 13.13 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing height (stick up) above land surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling dry ft.

Water level was measured using tape

Well was developed for hours at gpm

Method of development

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity gpm

Pump type:

Drilling Method auger

Drilling Fluid none Type of Rig CME 55

Name of Driller M.H. Brinkerhoff III

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D C B A)

N.J. License No. J1496

Name of Drilling Company DIAMOND DRILLING CO., INC.

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	none			
Outer Casing (Not Protective Casing)	.46	3.13	4	Sched. 40 PVC
Screen (Note slot size)	3.13	13.13	4	Sched. 40 PVC (.02)
Tail Piece	none			
Gravel Pack	2.5	15	10	Morie #2
Annular Seal/Grout	0	2.5	10	Neat Cement
Method of Grouting	Pressure			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

Attached

certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature [Signature]

Date 8-12-93

302795

MONITORING WELL RECORD

Well Permit No. 31 43532
Atlas Sheet Coordinates 31 23 188OWNER IDENTIFICATION - Owner HOLLY DESIGN & DISPLAYS
Address 1701 ROUTE 70 EAST
City CHERRY HILL State NJ Zip Code 08034WELL LOCATION - If not the same as owner please give address. Owner's Well No. MM2102
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 21A Block No. 202
Address 300 CRIDER AVE, MOORESTOWN, NJ 08057TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 4-1-94
Regulatory Program Requiring Well ISRA SITE Case I.D. # 92183CONSULTING FIRM/FIELD SUPERVISOR (if applicable) BRINKERHOFF ENV. Tele. # 908-920-2835

WELL CONSTRUCTION

Total depth drilled 6.63 ft.Well finished to 6.63 ft.

Borehole diameter:

Top 6 in.Bottom 6 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ NoStatic water level after drilling .33 ft.Water level was measured using TAPEWell was developed for .5 hours at NA gpmMethod of development DIAPHRAGM PUMPWas permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AugerDrilling Fluid NONE Type of Rig HAND AUGERName of Driller M.H. BRINKERHOFFHealth and Safety Plan submitted? ☐ Yes ☒ NoLevel of Protection used on site (circle one) None C B AN.J. License No. J1496

Name of Drilling Company _____

DIAMOND DRILLING CO., INC.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature [Signature]Date 4-1-94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	NONE			
Outer Casing (Not Protective Casing)	.67	1.63	2	Sched. 40 PVC
Screen (Note slot size)	1.63	6.63	2	Sched. 40 PVC (.02)
Tail Piece	NONE			
Gravel Pack	1.5	6.63	6	MORIE #2
Annular Seal/Grout	0	1.5	6	Neat Cement
Method of Grouting	PRESSURE			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0'-2' Concrete PAD
2'-3' Brown clayey silt
AND FMC gravel
with some sand
3'-6.63' Gray clayey silt

302796

MONITORING WELL RECORD

Well Permit No. 31 - 43151Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PHILADELPHIA COLA COLA CO
Address 1250 GLEN AVENUE
City MOORESTOWN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County BURKINGTON Municipality MOORESTOWN TWP Lot No. 4 Block No. 900
Address SAME

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/12/94
Regulatory Program Requiring Well LET Case I.D. # 93-9-16-0756-15

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) SFM Group - Ben Tim Tele. #

WELL CONSTRUCTION

Total depth drilled 11 ft.Well finished to 11 ft.

Borehole diameter:

Top 10 in.Bottom 10 in.Well was finished: ☐ above grade☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 1 ft.Water level was measured using Tape MeasureWell was developed for 15 hours at 2 gpmMethod of development SubmersibleWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity gpmPump type: Drilling Method Hollow Stem AugerDrilling Fluid None Type of Rig D-120Name of Driller KARL D. HitzelbergerHealth and Safety Plan submitted? ☐ Yes ☒ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. J-1530Name of Drilling Company

TABASCO DRILLING CORP.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Karl D. HitzelbergerDate 1/13/94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	3	4	PVC SCH. 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	3	11	4	PVC .010 SCH. 40
Tail Piece				
Gravel Pack	3	11	10	Rice #2 Sand
Annular Seal/Grout	1	3		9.3 lbs/gal Slurry Seal
Method of Grouting	Flush mount concrete O-1 grout			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0' Cover
1' Sand and gravel
3' Orange sands.
9' Black Clay.
15'

302797

MONITORING WELL RECORD

Well Permit No. 31 - 43152
Atlas Sheet Coordinates 31 : 03 : 139

OWNER IDENTIFICATION - Owner PHILADELPHIA COLA COLA CO
Address 1250 GLEN AVENUE
City MOORESTOWN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-2
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 4 Block No. 900
Address SAME

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/12/94
Regulatory Program Requiring Well UST Case I.D. # 73-9-16-0756-15

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) SFM Group Tele. #

WELL CONSTRUCTION

Total depth drilled 12 ft.

Well finished to 12 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 4.0 ft.

Water level was measured using Tape measure

Well was developed for 1 hours at 2 gpm

Method of development Submersible

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method Hollow Stem Auger

Drilling Fluid None Type of Rig D-120

Name of Driller Karl D. Hitzelberg

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J-1530

Name of Drilling Company TABASCO DRILLING CORP.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	2	4	PVC SCH. 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	2	12	4	.010 PVC SCH. 40
Tail Piece				
Gravel Pack	2	12	10	Rec #2 Sand
Annular Seal/Grout	1	2	10	Bent Pallets (gravel)
Method of Grouting	Flushmount (Concrete) gravity 0-1'			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0' Sand and silt Brown to Tan.
4' Tan silty sand.
7' orange wet sand.
8' Black clay
12'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Karl D. Hitzelberg

Date 1/12/94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302798

DWR-138 M
12/91New Jersey Department of Environmental Protection and Energy
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No. 31 - 43153
Atlas Sheet Coordinates 31 : 03 : 189OWNER IDENTIFICATION - Owner PHILADELPHIA COLA COLA CO
Address 1250 GLEN AVENUE
City MOORESTOWN State NJ Zip Code WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-3
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 4 Block No. 900
Address SAMETYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1.13.94
Regulatory Program Requiring Well UST Case I.D. # 93-9-16-0756-15
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) SFM Group Butte Tele. #

WELL CONSTRUCTION

Total depth drilled 12 ft.Well finished to 12 ft.

Borehole diameter:

Top 10 in.Bottom 10 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 4' ft.Water level was measured using Tape measureWell was developed for 5 hours at 2 gpmMethod of development SubmersibleWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity gpmPump type: Drilling Method Hydro Split AugerDrilling Fluid none Type of Rig D-120Name of Driller Karl D. HutterHealth and Safety Plan submitted? ☐ Yes ☒ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. J-1530Name of Drilling Company TABASCO DRILLING CORP.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	2	4	PVC SCH 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	2	12	4	.010 PVC SCH 40
Tail Piece				
Gravel Pack	2	12	10	Rec #2 Sand
Annular Seal/Grout	1	2	10	Gravelly Pellets
Method of Grouting	0-1 Flushmount Set with Concrete			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0' Concrete
1' Fill SAND + GRAVEL
4' ORANGE SANDS.
9' Silty grey Clay
12' Black Clay

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.Driller's Signature Karl D. HutterDate 1/13/94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

31-03-1 93

**DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD**

Permit No. 31-1419
Application No. _____
County _____

1. OWNER Clinton B. Gardner ADDRESS Palmyra, N. J.
Owner's Well No. I SURFACE ELEVATION 30 Feet
(Above mean sea level)
2. LOCATION Back of his proposed new house on Lenola Road
3. DATE COMPLETED June 10, '54 DRILLER Haines & Moore
4. DIAMETER: Top 4 Inches Bottom 4 Inches TOTAL DEPTH 38 Feet
5. CASING: Type black steel pipe Diameter 4 Inches Length 27 Feet
6. SCREEN: Type slotted Opening 20' Diameter 3 3/4 Inches Length 6 Feet
Size of
Range in Depth { Top 31 Feet Geologic Formation _____
Bottom 37 Feet
Tail piece. Diameter 3 Inches Length 1 Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date June 10, '54 Yield 20 Gallons per minute
Static water level before pumping 16 Feet below surface
Pumping level 20 feet below surface after 3 hours pumping
Drawdown 4 Feet Specific Capacity 5 Gals. per min. per ft. of drawdown
How Pumped with well machine How measured time to fill a container
Observed effect on nearby wells No nearby wells
9. PERMANENT PUMPING EQUIPMENT: To be supplied by the plumber.
Type _____ Capacity _____ Gallons per minute
How Driven _____ Horse Power _____ R.P.M. _____
Depth of pump in well _____ Feet Depth of Foot piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR New home
AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No. *
Taste good Odor none Color clear Temperature 56 °F
12. LOG _____ Are samples available? no
(Give details on back of sheet or on separate sheet)
13. SOURCE OF DATA Well drillers record
14. DATA OBTAINED BY Earl L. Moore DATE June 28, 1954

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302799

New Jersey Department of Environmental Protection
Division of Water Resources

WELL SEALED ... 2-26-91 MONITORING WELL RECORD

Well Permit No. 31 32382
Atlas Sheet Coordinates 31 03 194

OWNER IDENTIFICATION - Owner WHITEKILL ENTERPRISES LTD
Address LAUREL CORP CENTER RD
City MT. LAUREL State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW#3
County BURLINGTON Municipality LAUREL TWP Lot No. 1 Block No. 214G
Address 550 Glen Ave, Mount Laurel, NJ

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 11/22/89
Regulatory Program Requiring Well MTA/MTA/MTA Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) DUPONT ENVIRONMENTAL (B. BAIRD) Tele. # 800-548-1964

WELL CONSTRUCTION

Total depth drilled 18.6 ft.

Well finished to 18.6 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 11 ft.

Water level was measured using METER

Well was developed for 15 hours at gpm

Method of development AIR LIFT

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity gpm

Pump type:

Drilling Method ALGER

Drilling Fluid air Type of Rig Mobil Drill

Name of Driller Gregg Myers

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. T 1472

Name of Drilling Company GRIGG MYERS

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	8.6	4	Sch 40 FJT PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	8.6	18.6	4	Sch 40 FJT PVC .02
Tail Piece				
Gravel Pack	8.6	18.6		#2 MIRE GRAVEL
Annular Seal/Grout	7.6 0	6.6 7.6		BENTONITE PELLETS PORTLAND CEMENT GROUT
Method of Grouting	SLURRY			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0 - 18.6 SAND -
YELLOW TO BROWN

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Gregg Myers Date 11/29/89

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302300

302801

DWR-138 M
6/89New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 36053
Atlas Sheet Coordinates 31 : 05 : 194 ☐OWNER IDENTIFICATION - Owner FRID
Address 383 KINGS HIGHWAY
City CHERRY HILL State NJ Zip Code WELL LOCATION - If not the same as owner please give address. Owner's Well No. PZ-01
County Burlington Municipality MOORESTOWN TWP Lot No. 211 Block No. 202
Address 301 New Albany Road, MoorestownTYPE OF WELL (as per Well Permit Categories) PIEZOMETER Date well completed 2 / 21 / 91
Regulatory Program Requiring Well EDPA Case I.D. # 85257CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'Brien & Gere Tele. #

WELL CONSTRUCTION

Total depth drilled 25 ft.Well finished to 23 ft.

Borehole diameter:

Top 6 in.Bottom 6 in.Well was finished: ☒ above grade
☐ flush mountedIf finished above grade, casing
height (stick up) above land
surface 2 ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 11.5 ft.Water level was measured using M ScopeWell was developed for 1.5 hours at 1.5 gpmMethod of development Air LiftWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity gpmPump type: Drilling Method AugerDrilling Fluid None Type of Rig OME 750Name of Driller Jay StevensonHealth and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J-1412Name of Drilling Company W.C. SERVICES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	+2.0	8	2	PVC Flush Joint
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	8	23	2	PVC FJ .020
Tail Piece				
Gravel Pack	6	23	6	#1 Morie
Annular Seal/Grout	0	6	6	Bentonite/Cement
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

See Attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Jay Stevenson

Date

3/27/91

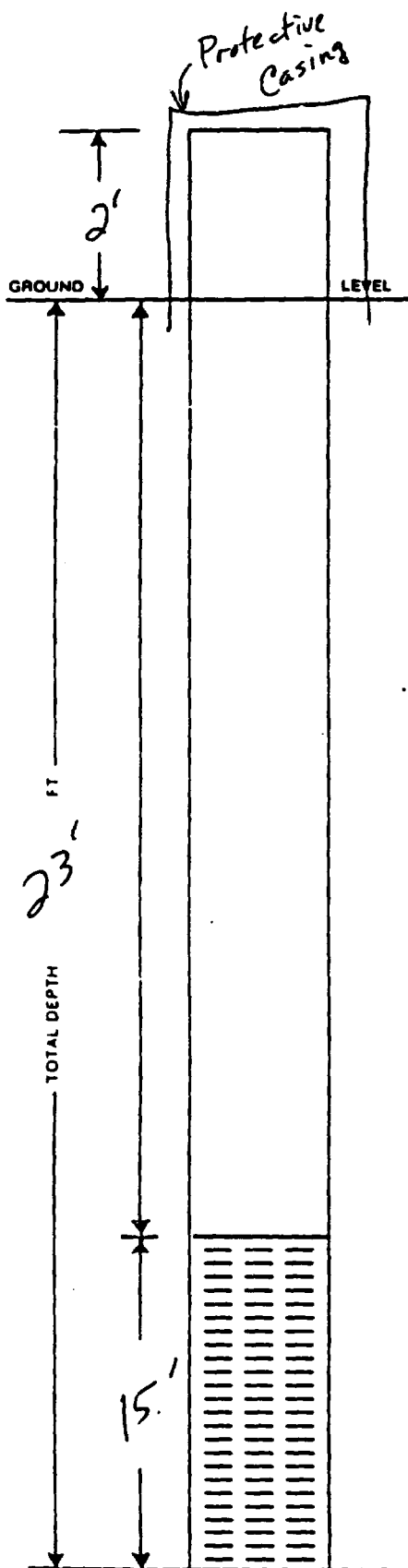
COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302802

W. C. SERVICES, INC.

SINGLE CASED WELL

Coord. # 31:03:194



WELL LOG	FEET FROM GROUND SURFACE 0 to 25'	NAME OF OWNER
		Erico
tan silty sand, fine		Location 301 New Albany Road Moorestown, NJ
to medium	0 - 4'	Well No. PZ-01
medium coarse silty		State Permit 3136053-0
sand with traces of		Job No. 22842
gravel	4 - 19'	Test Pumped (Hrs.) 1½
fine - medium sand	19 - 23'	Capacity (GPM) 1.5
micaceous gray green		Static Level 11.5'
clay	23 - 25'	Pumping Level 22'
		Datum ground
		Specific Capacity
		Diameter of Casing 2"
		Depth of Well (Ground) 23'
		Depth to Gravel 6'
		Gravel Size #1 Morie
		Length of Casing & Screen 25'
		Screen Material sch. 40 PVC
		Screen Mfg. bedrock
		Screen Dia. 2"
		Length of Screen 15'
		Top of Screen Filing flush joint
		Bottom of Screen Filing F.J. Cap
		Slot Size .020
		Seal Material cement & bentonite
		Quantity 3 bags cement ½ bag bentonite
		Depth of Seal Material 6'
		Drilling Machine D-12
		Date Well Completed 2/21/91
		Driller Jay Stevenson J-1412



MONITORING WELL RECORD

Well Permit No. 31 - 36054
Atlas Sheet Coordinates 31 : 03 : 194 ☐

OWNER IDENTIFICATION - Owner ERICO
Address 365 KINGS HIGHWAY
City CHERRY HILL State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. PZ-02
County Burlington Municipality MOORESTOWN TWP Lot No. 213 Block No. 202
Address 301 New Albany Road, Moorestown, NJ

TYPE OF WELL (as per Well Permit Categories) PIEZOMETER Date well completed 2 / 22 / 91
Regulatory Program Requiring Well CEQA Case I.D. # 85257

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'Brien & Gere Tele. #

WELL CONSTRUCTION

Total depth drilled 25 ft.

Well finished to 23 ft.

Borehole diameter:

Top 6 XX in.

Bottom 6 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2 ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 11.5 ft.

Water level was measured using M Scope

Well was developed for 1 hours at 2 gpm

Method of development Air Lift

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity gpm

Pump type:

Drilling Method Auger

Drilling Fluid None Type of Rig: CME 750

Name of Driller Jay Stevenson

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J-1412

Name of Drilling Company W.C. SERVICES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	+ 2	8	2	PVC FJ
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	8	23	2	PVC FJ .020
Tail Piece				
Gravel Pack	6	23	6	#1 Morie
Annular Seal/Grout	0	6	6	Bentonite/Cement
Method of Grouting	Tremie			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

See Attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Jay Stevenson

Date 3/27/91 302803

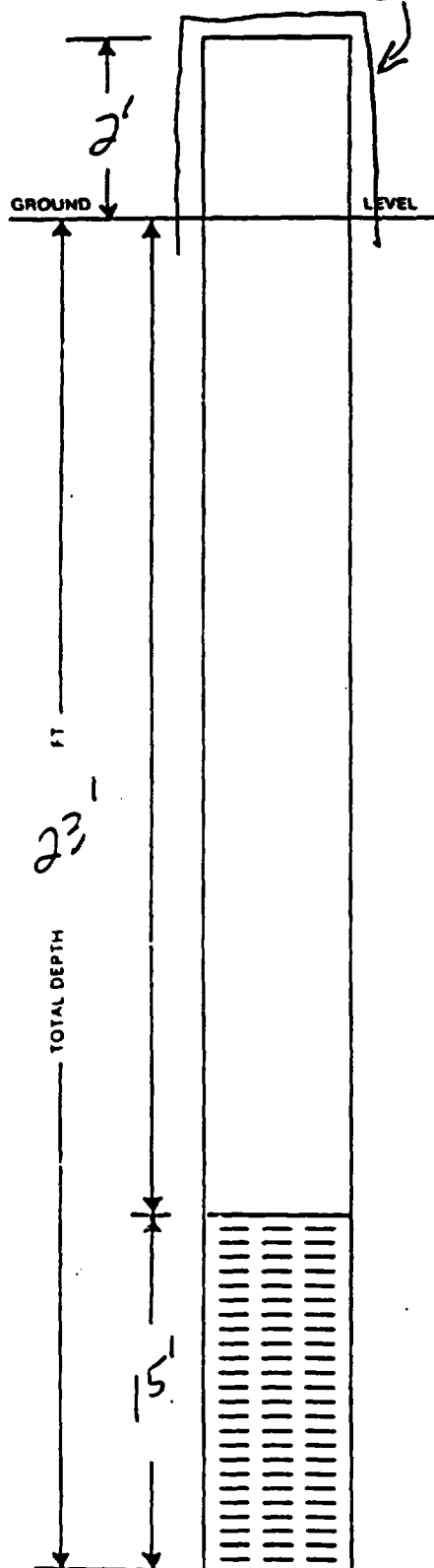
Protective Casing

W. C. SERVICES, INC.

302804

SINGLE CASED WELL

Coord. # 31:03:194



WELL LOG	FEET FROM GROUND SURFACE 0 to 25'	NAME OF OWNER Erico
tan silty fine, med. sand	0 - 14'	Location 301 New Albany Road Moorestown, NJ
brown gray silty sand	14 - 16'	Well No. PZ-02
brown silty sand	16 - 23'	State Permit 3136054-6
green gray damp clay	23 - 25'	Job No. 22842
		Test Pumped (Hrs.) 1
		Capacity (GPM) 2
		Static Level 11.5'
		Pumping Level 22'
		Datum ground
		Specific Capacity
		Diameter of Casing 2"
		Depth of Well (Ground) 23'
		Depth to Gravel 6'
		Gravel Size #1 Morie
		Length of Casing & Screen 25'
		Screen Material sch. 40 PVC
		Screen Mtg. bedrock
		Screen Dia. 2"
		Length of Screen 15'
		Top of Screen Fitting flush joint
		Bottom of Screen Fitting F.J. Cap
		Slot Size .020
		Seal Material cement & bentonite
		Quantity 3 bags cement 1 bag bentonite
		Depth of Seal Material 6'
		Drilling Machine D-12
		Date Well Completed 2/22/91
		Driller Jay Stevenson J-1412



302805

MONITORING WELL RECORD

Well Permit No. 31 - 34085
Atlas Sheet Coordinates 31 : 03 : 194



OWNER IDENTIFICATION - Owner ENERGY INC
Address 390 NEW ALBANY ROAD
City MOORESTOWN State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-2R
County Burlington Municipality MOORESTOWN TWP Lot No. 1 Block No. 214E
Address 390 New Albany Road, Moorestown, NJ

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 2 / 25 / 91
Regulatory Program Requiring Well MONITORING Case I.D. # 80237

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'Brien & Gere Tele. # _____

WELL CONSTRUCTION

Total depth drilled 20 ft.

Well finished to 18.5 ft.

Borehole diameter:
Top 10 in.
Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface 0 ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 7 ft.

Water level was measured using M Scope

Well was developed for 1 hours at 3 gpm

Method of development Pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method Auger

Drilling Fluid None Type of Rig CME 750

Name of Driller Ed Angelo

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J-1452

Name of Drilling Company W.C. SERVICES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	3.5	4	PVC Flush Joint
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	3.5	18.5	4	PVC FJ .020
Tail Piece				
Gravel Pack	2	18.5	10	#1 Morie
Annular Seal/Grout	0	2	10	Bentonite/Cement
Method of Grouting	Tremie			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

See Attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Ed Angelo

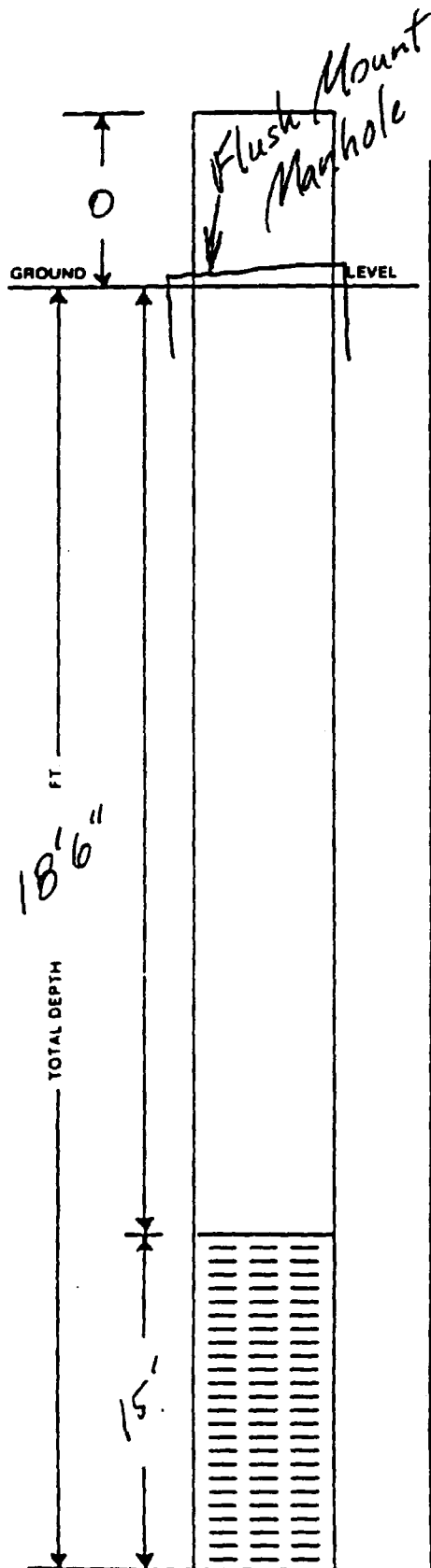
Date 3/27/91

W. C. SERVICES, INC.

302806

SINGLE CASED WELL

Coord. # 31:03:194



WELL LOG	FEET FROM GROUND SURFACE 0 to 20'	NAME OF OWNER
		Engraph, Inc.
orange brown med.		Location 390 New Albany Roa Moorestown, N.J.
sand, little silt	0 - 5'	Well No. MW-2R
orange brown med.		State Permit 3136055-6
sand, little silt,		Job No. 22842
with some gravel	5 - 14'	Test Pumped (Hrs.) 1 hr.
saturated loose		Capacity (GPM) 3
orange brown sand		Static Level 7'
some silt	14 - 18'	Pumping Level 16'
dark gray clay	18 - 20'	Datum ground
		Specific Capacity
		Diameter of Casing 4"
		Depth of Well (Ground) 18'6"
		Depth to Gravel 2'
		Gravel Size #1 Morie
		Length of Casing & Screen 18'6"
		Screen Material PVC
		Screen Mfg. Johnson
		Screen Dia. 4"
		Length of Screen 15'
		Top of Screen Fitting flush joint
		Bottom of Screen Fitting flush joint cap
		Slot Size .020
		Seal Material bentonite/cement
		Quantity 1 bag cement 1/2 bag bentonite
		Depth of Seal Material 2'
		Drilling Machine D-12
		Date Well Completed 2-25-91
		Driller Ed Angelo, J-1452



MONITORING WELL RECORD

Well Permit No. 31 - 36056
Atlas Sheet Coordinates 31 : 03 : 194

OWNER IDENTIFICATION - Owner ENERPH INC
Address 370 NEW ALBANY ROAD
City MOORETOWN State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-5R
County Burlington Municipality MOORETOWN TWP Lot No. 1 Block No. 214E
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 2 / 25 / 91
Regulatory Program Requiring Well EERA Case I.D. # 85257

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'Brien & Gere Tele. # _____

WELL CONSTRUCTION

Total depth drilled 24 ft.

Well finished to 21 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface 0 ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 7 ft.

Water level was measured using M Scope

Well was developed for 1 hours at 3 gpm

Method of development pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method Auger

Drilling Fluid None Type of Rig CME 750

Name of Driller Ed Angelo

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. J-1452

Name of Drilling Company W.C. SERVICES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	4	4	PVC FJ
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	4	21	4	PVC FJ .020
Tail Piece				
Gravel Pack	2.5	21	10	#1 Morie
Annular Seal/Grout	0	2.5	10	Bentonite/Cement
Method of Grouting	Tremie			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

See Attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

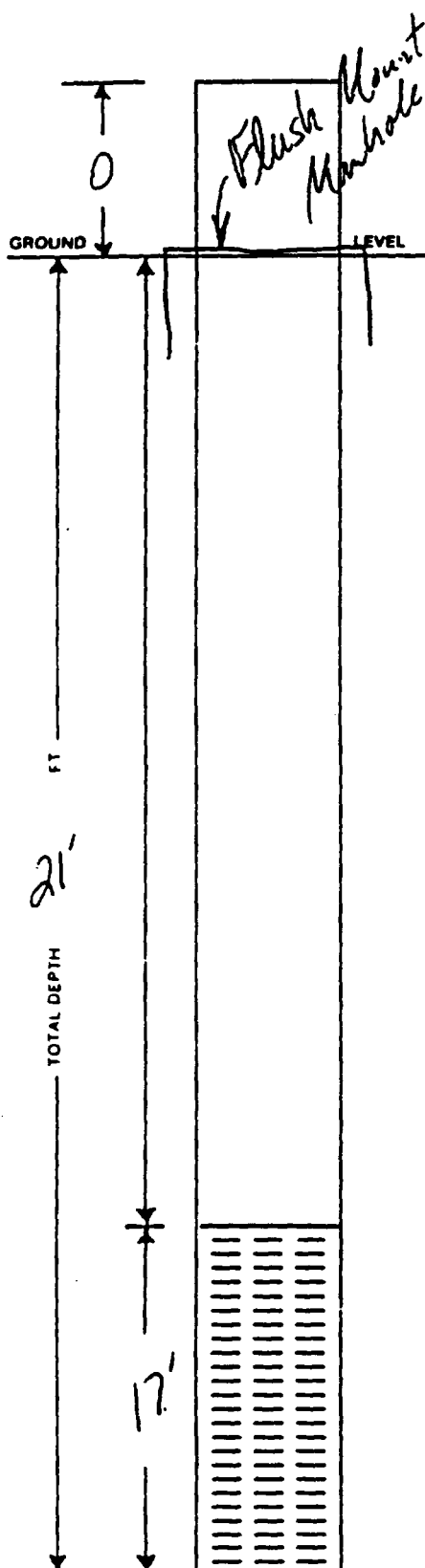
Driller's Signature Ed Angelo Date 3/27/91

302808

W. C. SERVICES, INC.

SINGLE CASED WELL

Coord. # 31:03:194



WELL LOG	FEET FROM GROUND SURFACE 0 to 24'	NAME OF OWNER
		Engraph, Inc.
brown medium fine sand		Location 390 New Albany Road Moorestown, N.J.
tan silt, tan clay	0 - 9'	Well No. MW-5R
orange brown silty sand		State Permit 3136056-2
some sandy silt	9 - 14'	Job No. 22842
tan orange brown silty		Test Pumped (Hrs.) 1 hr.
sand, some fine coarse		Capacity (GPM) 3
gravel	14 - 20'	Static Level 7'
dark gray clay some		Pumping Level 15'
mica	20 - 24'	Datum grade
		Specific Capacity
		Diameter of Casing 4"
		Depth of Well (Ground) 21'
		Depth to Gravel 2½'
		Gravel Size #1 Morie
		Length of Casing & Screen 21'
		Screen Material PVC
		Screen Mtg. Johnson
		Screen Dia. 4"
		Length of Screen 17'
		Top of Screen Fitting flush joint
		Bottom of Screen Fitting flush joint cap
		Slot Size .020
		Seal Material bentonite/cement
		Quantity 1 bag cement ½ bag bentonite
		Depth of Seal Material 2½'
		Drilling Machine D-12
		Date Well Completed 2/25/91
		Driller Ed Angelo J-1452

302809

DWR-138 M
6/89New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 - 36057
Atlas Sheet Coordinates 31 : 03 : 194 ☐OWNER IDENTIFICATION - Owner ERICO
Address 383 KINGS HIGHWAY
City CHERRY HILL State NJ Zip Code WELL LOCATION - If not the same as owner please give address. Owner's Well No. OS-7
County Burlington Municipality MOORESTOWN TWP Lot No. 27A Block No. 214F
Address Colonial Road, Moorestown, NJTYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 2 / 22 / 91
Regulatory Program Requiring Well EDRA Case I.D. # 85257CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'Brien & Gere Tele. #

WELL CONSTRUCTION

Total depth drilled 20 ft.Well finished to 20 ft.

Borehole diameter:

Top 10 in.Bottom 10 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface 0 ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 9 ft.Water level was measured using M ScopeWell was developed for 1 hours at 9 gpmMethod of development pumpWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity gpmPump type: Drilling Method AugerDrilling Fluid None Type of Rig CME 750Name of Driller Jay StevensonHealth and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None (D) C B AN.J. License No. J-1412Name of Drilling Company W.C. SERVICES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	7	4	PVC Flush Joint
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	7	20	4	PVC FJ .020
Tail Piece				
Gravel Pack	5	20	10	#1 Morie
Annular Seal/Grout	0	5	10	Bentonite/Cement
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

See Attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Jay Stevenson

Date

3/27/91

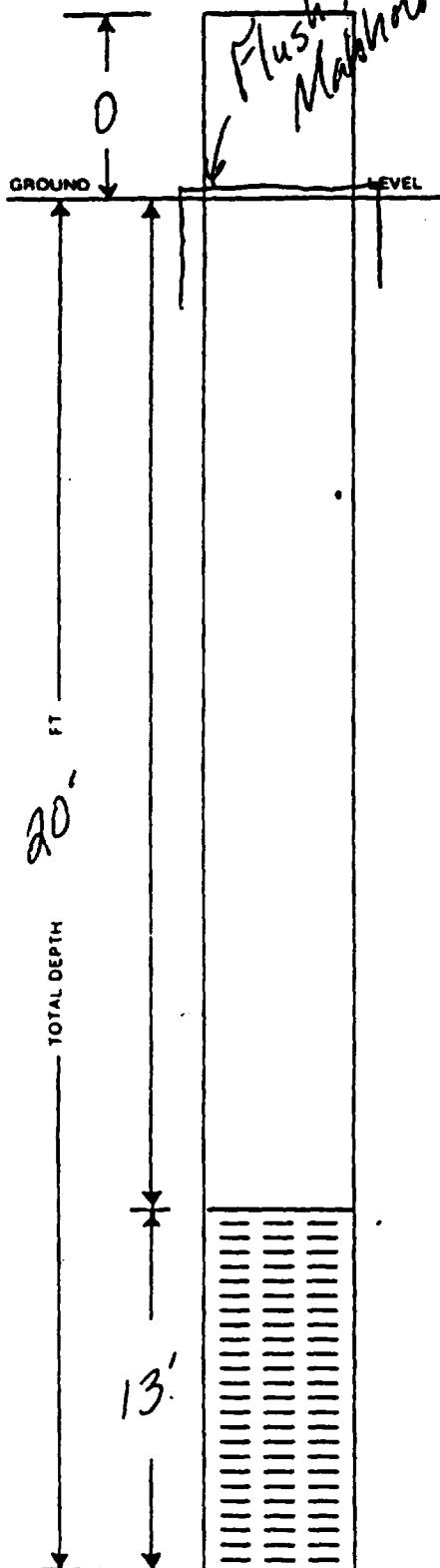
COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302810

W. C. SERVICES, INC.

SINGLE CASED WELL

Coord. # 31:03:194



WELL LOG	FEET FROM GROUND SURFACE 0 to 20'	NAME OF OWNER
		Erico
asphalt	0 - 7"	Location Colonial Road Moorestown, NJ
tan sandy clay	7" - 3'	Well No. OS-7
tan med. coarse	3' - 8½'	State Permit 3136057-2
sand & fine gravel		Job No. 22842
brown black silty	8½ - 13½'	Test Pumped (Hrs.) 1
fine med. sand & med.		Capacity (GPM) 9
coarse gravel		Static Level 9'
tan brown black	13½ - 15½'	Pumping Level 19'
silty fine med. sand		Datum ground
green gray brown	15½ - 20'	Specific Capacity
silty clay		Diameter of Casing 4"
		Depth of Well (Ground) 20'
		Depth to Gravel 5'
		Gravel Size #1 Morie
		Length of Casing & Screen 20'
		Screen Material sch. 40 PVC
		Screen Mfg. Johnson
		Screen Dia. 4"
		Length of Screen 13'
		Top of Screen Fitting flush joint
		Bottom of Screen Fitting slip cap
		Slot Size .020
		Seal Material cement/bentonite
		Quantity 3 bags cement ¼ bag bentonite
		Depth of Seal Material 5'
		Drilling Machine D-12
		Date Well Completed 2/22/91
		Driller Jay Stevenson, J-1412

WELL RECORD

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCESCoord 31.03.1.95Permit No. 31-32239-5Application No. 31-32239-5**Summit Drilling Company, Inc.**

"SUPERIOR QUALITY, VALUE & PERFORMANCE"
489 UNION AVENUE BRIDGEWATER, NJ 08807
1-800-242-6648 (201) 722-4266 FAX (201) 356-1009

302811

1. OWNER PSE&S ADDRESS 80 Park Plaza, Newark, NJ
Owner's Well No. MW-1 SURFACE ELEVATION _____
2. LOCATION PSE&S, 300 New Albany Rd., Moorestown, NJ
3. DATE COMPLETED 10/23/89 DRILLER Summit Drilling Co., Inc., Donald Grahame, Jr., Lic. #1212
4. DIAMETER: Top 12 inches Bottom 12 inches TOTAL DEPTH 22 feet
5. CASING: Type PVC Diameter 4 inches Length 6.5 feet
6. SCREEN: Type PVC Size of Opening .010 Diameter 4 inches Length 15 feet
Range in Depth: Top _____ feet
Bottom _____ feet Geologic Formation _____
Tail Piece: Diameter N/A inches Length _____ feet
7. WELL FLOWS NATURALLY N/A Gallons per minute at _____ feet above surface
Water rises to _____ feet above surface
8. RECORD OF TEST: Late N/A Yield _____ Gallons per minute
Static water level before pumping 9 feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown _____ feet Specific Capacity _____ Gallons per minute per foot of drawdown
How pumped _____ How measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type N/A Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ feet Depth of Footpiece in well _____ feet
Depth of Air Line in well _____ feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR monitor AMOUNT: Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ degrees F.
12. LOG Attached Are samples available? _____
13. SOURCE OF DATA Summit Drilling Co., Inc.
14. DATA OBTAINED BY Donald Grahame, Jr. (Lic. # 1212) Date 10/23/89

Summit Drilling Company, Inc.

BORING LOG

"SUPERIOR QUALITY, VALUE & PERFORMANCE"
489 UNION AVENUE BRIDGEWATER, NJ 08807
1-800-242-6648 (201) 722-4266 FAX (201) 356-1009

Well No. MW-1 Coordinate No. 31.03.1.95 Permit No. 31-32239-5
Date Drilled 10/23/89 County Burlington Use monitor
Location PSE&G, 300 New Albany Rd., Moorestown, NJ
Owner PSE&G, 80 Park Plaza, Newark, NJ
Drilling Method Auger Sampling Method split spoon
Hole Diameter 12" Total Depth 22'
Casing Type PVC Diameter 4" Length 6.5'
Screens Type PVC Slot .010 Diameter 4" Length 15'
Gravel Pack Size Morie # 1 Casing Seal Portland, bentonite
Static Water Level 9' Geologic Formation

Depth	Sample	Blows per 6"	Well	Identification
Below Surface	Number	on Sampler	Design	of Soils / Remarks
1' - 3'	1	no blows		0' - 1' Asphalt, gravel
				1' - 6' Lt. brn. s/f sand, little silt, tr. clay
				6' - 8' Lt. brn. clayey c/f sand
8' - 10'	2			8' - 20.5' Orn.-brn. c/f sand, little silt, tr. c/f gravel
10'				
13' - 15'	3			
18' - 20'	4			
20'				20.5' - 22' Orn.-brn. s/f sandy clay
30'				
40'				

302812

302813

WELL RECORD

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

Coord 31.03.1.95
Permit No. 31-37240-9
Application No. _____

Summit Drilling Company, Inc.

"SUPERIOR QUALITY, VALUE & PERFORMANCE"
489 UNION AVENUE BRIDGEWATER, NJ 08807
1-800-242-6648 (201) 722-4266 FAX (201) 356-1009

1. OWNER PSE&G ADDRESS 80 Park Plaza, Newark, NJ
Owner's Well No. MW-2 SURFACE ELEVATION _____
2. LOCATION PSE&G, 300 New Albany Rd., Moorestown, NJ
3. DATE COMPLETED 10/23/89 DRILLER Summit Drilling Co., Inc., Donald Grahame, Jr. Lic. #1212
4. DIAMETER: Top 12 inches Bottom 12 inches TOTAL DEPTH 21 feet
5. CASING: Type PVC Diameter 4 inches Length 5.5 feet
6. SCREEN: Type PVC Size of Opening .010 Diameter 4 inches Length 15 feet
Range in Depth: Top _____ feet
Bottom _____ feet Geologic Formation _____
Tail Piece: Diameter N/A inches Length _____ feet
7. WELL FLOWS NATURALLY N/A Gallons per minute at _____ feet above surface
Water rises to _____ feet above surface
8. RECORD OF TEST: Date N/A Yield _____ Gallons per minute
Static water level before pumping _____ feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown _____ feet Specific Capacity _____ Gallons per minute per foot of drawdown
How pumped _____ How measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type N/A Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ feet Depth of Footpiece in well _____ feet
Depth of Air Line in well _____ feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR _____ monitor AMOUNT: Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ degrees F.
12. LOG Attached Are samples available? _____
13. SOURCE OF DATA Summit Drilling Co., Inc.
14. DATA OBTAINED BY Donald Grahame, Jr. (Lic. #1212) Date 10/23/89

Summit Drilling Company, Inc.

BORING LOG

"SUPERIOR QUALITY, VALUE & PERFORMANCE"
489 UNION AVENUE BRIDGEWATER, NJ 08807
1-800-242-6648 (201) 722-4266 FAX (201) 356-1009

Well No. MW-2 Coordinate No. 31.03.1.95 Permit No. 31-32240-9
Date Drilled 10/23/89 County Burlington Use monitor
Location PSE&G, 300 New Albany Rd., Moorestown, NJ
Owner PSE&G, 80 Park Plaza, Newark, NJ
Drilling Method Auger Sampling Method from cuttings
Hole Diameter 12" Total Depth 21'
Casings Type PVC Diameter 4" Length 5.5'
Screens Type PVC Slot .010 Diameter 4" Length 15'
Gravel Pack Size Morie # 1 Casing Seal Portland, bentonite
Static Water Level 9' Geologic Formation _____

Depth Below Surface	Sample Number	Blows per 6" on Sampler	Well Design	Identification of Soils / Remarks
				0' - 4' GROUT 0' - 1' Asphalt, gravel
				4' - 6' SOLID 1' - 6' Orange brn. clayey m/f sand
				6' - 5' PELLETS
				5' - 21' GRAVEL
				6' - 21' SCREEN
				21' SET WELL 6' - 8' Orn.-brn. m/f sand, little silt
				2-3 GPM tr. clay
10'				8' - 19' Orn.-brn. c/f sand, little silt, tr. c/f gravel
20'				19' - 21' Orn.-brn. m/f sandy clay
30'				
40'				

302814



MONITORING WELL RECORD

WELL SEALED 2.5.91 Well Permit No. 31 - 35860
Atlas Sheet Coordinates 31 : 03 : 196

OWNER IDENTIFICATION - Owner ENCRAPH INC.
Address 390 NEW ALBANY ROAD
City MOORESTOWN State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW#5
County _____ Municipality MOORESTOWN TWP Lot No. 1 Block No. 214B
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/23/91
Regulatory Program Requiring Well MTWA Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'Brien & Gere Engineers Tele. # 201/225-7380

WELL CONSTRUCTION

Total depth drilled 15 ft.

Well finished to 15 ft.

Borehole diameter:

Top 11 in.

Bottom 11 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface --- ft.

Was steel protective casing installed?

☒ Yes ☐ No road box

Static water level after drilling 7 ft.

Water level was measured using tape

Well was developed for 1 hours at 1 gpm

Method of development 2" test pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity --- gpm

Pump type: ---

Drilling Method HSA

Drilling Fluid _____ Type of Rig Mobile B-57

Name of Driller Martin A. Pepper

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. J1405

Name of Drilling Company B & B DRILLING, INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	-3"	-5'	4	PVC Thr. F.J.
Outer Casing (Not Protective Casing)	---	---	---	---
Screen (Note slot size)	-5'	-15'	4	.010 PV
Tail Piece	---	---	4	PVC Plug
Gravel Pack	-3'	-15'	#1	Morie
Annular Seal/Grout	-1	-3'	3/8	Bentonite Pellets
Method of Grouting	installed road box			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

DEPTH	FORMATION
0-2'	Dr. Br. clay & silt, some org.
2-8'	Org. Br., MC sand, TR. silt, TR F gravel, TR. Clay
8-10'	Wet Org. Br. M/C Sand, & gravel
10-12'	Br. Org. C sand, F gravel, Dr. silt, TR clay
12-14'	Org. Br. M sand, w/clay, TR silt
14-16'	Org. Br. M/C sand, some clay, TR silt

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Martin A. Pepper

Date

1/24/91



MONITORING WELL RECORD

Well Permit No. 31 - 35861
Atlas Sheet Coordinates 31 : 03 : 195

OWNER IDENTIFICATION - Owner KNSHAFF INC.
Address 110 NW ALBANY ROAD
City MOORESTOWN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW#6
County Municipality MOORESTOWN TWP Lot No. 1 Block No. 2142
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1 / 23 / 91
Regulatory Program Requiring Well RCRA Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'Brien & Gere Engineers Tele. # 201/225-7380

WELL CONSTRUCTION

Total depth drilled 14 ft.

Well finished to 13 ft.

Borehole diameter:

Top 11 in.

Bottom 11 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface --- ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 6 ft.

Water level was measured using tape

Well was developed for 1 hours at 1 gpm

Method of development 2" test pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity --- gpm

Pump type: ---

Drilling Method HSA

Drilling Fluid --- Type of Rig Mobile B-57

Name of Driller Martin A. Pepper

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. J1405

Name of Drilling Company B & B DRILLING, INC.

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	-3"	-3'	4	PVC Thr. F.J.
Outer Casing (Not Protective Casing)	---	---	---	---
Screen (Note slot size)	-3'	13'	4	.010 slot
Tail Piece	---	---	4	.010 slot
Gravel Pack	-2'	13'	#1	Morie
Annular Seal/Grout	1'	2'	3/8	bentonite pellets
Method of Grouting	road box installed			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

DEPTH	FORMATION
0-2'	Dr. Br. clay, some silt, some org.
2-6'	Org. Br. F/M sand, little silt, TR M gravel, TR clay
6-11'	Org. Br. wet, M/C sand, and gravel
11-14'	Org. wet M sand, w/clay, TR. silt

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Martin A. Pepper

Date 1/24/91

DWR-138 M
6/89

New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 34118
Atlas Sheet Coordinates 31 : 03 : 197 ☐

OWNER IDENTIFICATION - Owner ENERGAP INC.
Address 1930 CAMDEN ROAD
City CHARLOTTE State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW2
County Burlington Municipality MOORESTOWN TWP Lot No. 1 Block No. 214E
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 6.1.90
Regulatory Program Requiring Well EDRA Case I.D. # EEC48
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) John Knox - O'Brien Tele. # 225-7390

WELL CONSTRUCTION

Total depth drilled 17.5 ft.

Well finished to 17.2 ft.

hole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling 9.8 ft.

Water level was measured using water meter

Well was developed for 1 hours at 14 gpm

Method of development Sub pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: NA

Drilling Method ISA

Drilling Fluid NA Type of Rig CHEK

Name of Driller Walter Ketter

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

I.J. License No. 1316

Name of Drilling Company EMPIRE SOILS INVESTIGATIONS

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	<u>0</u>	<u>7.2</u>	<u>4</u>	<u>PVC</u>
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	<u>7.2</u>	<u>17.2</u>	<u>4</u>	<u>PVC Slot .010</u>
Tail Piece				
Gravel Pack	<u>4</u>	<u>17.5</u>	<u>-</u>	<u>Sand</u>
Annular Seal/Grout	<u>2</u>	<u>4</u>	<u>-</u>	<u>Bentonite</u>
Method of Grouting	<u>gravity</u>			


GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

Log attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Walter Ketter 1316 Date 6/28/90

DATE	TIME	DRILLED FROM	DRILLED TO	WEATHER	TEMP	EMPIRE SOILS INVESTIGATIONS INC.  FIELD LOG	HOLE NO. <u>mw-2</u>
<u>6-1-80</u>		<u>1.00</u>	<u>1.00</u>				GRD. ELEV. <u>3134.118</u> <u>3103.197</u>

PROJECT _____
 LOCATION P. 1 Sheet 1 of 1

DEPTH OF SAMPLE	SAMPLE NO.	BLOWS ON SAMPLER				BLOWS ON CASING C	MOISTURE	COLOR	SAMPLE RECOVERY	CLASSIFICATION OF MATERIALS DRILLED	OTHER DATA	WELL DETAILS
		0	6	12	18	N						
1	1	1	1	1	1	1	10	1.0	1.0	1.0	SOIL	
2	2					1	10	1.8	1.8	1.8	Turned to clay-like	
3	3	6	12			1	10	1.8	1.8	1.8	dry m. c. Sand	
4	4	1	1	1	1	1	10	1.8	1.8	1.8	dry m. c. Sand	
5	5	1	1	1	1	1	10	1.8	1.8	1.8	dry m. c. Sand	
6	6	1	1	1	1	1	10	1.8	1.8	1.8	dry m. c. Sand	
7	7	1	1	1	1	1	10	1.8	1.8	1.8	dry m. c. Sand	
8	8	1	1	1	1	1	10	1.8	1.8	1.8	dry m. c. Sand	
9	9	1	1	1	1	1	10	1.8	1.8	1.8	dry m. c. Sand	
10	10	24	24			1	10	1.8	1.8	1.8	dry m. c. Sand	
11	11	20	15			1	10	1.8	1.8	1.8	dry m. c. Sand	
12	12					1	10	1.8	1.8	1.8	dry m. c. Sand	
13	13					1	10	1.8	1.8	1.8	dry m. c. Sand	
14	14					1	10	1.8	1.8	1.8	dry m. c. Sand	
15	15					1	10	1.8	1.8	1.8	dry m. c. Sand	
16	16					1	10	1.8	1.8	1.8	dry m. c. Sand	
17	17					1	10	1.8	1.8	1.8	dry m. c. Sand	
18	18					1	10	1.8	1.8	1.8	dry m. c. Sand	
19	19					1	10	1.8	1.8	1.8	dry m. c. Sand	
20	20					1	10	1.8	1.8	1.8	dry m. c. Sand	
21	21					1	10	1.8	1.8	1.8	dry m. c. Sand	
22	22					1	10	1.8	1.8	1.8	dry m. c. Sand	
23	23					1	10	1.8	1.8	1.8	dry m. c. Sand	
24	24					1	10	1.8	1.8	1.8	dry m. c. Sand	
25	25					1	10	1.8	1.8	1.8	dry m. c. Sand	
26	26					1	10	1.8	1.8	1.8	dry m. c. Sand	
27	27					1	10	1.8	1.8	1.8	dry m. c. Sand	
28	28					1	10	1.8	1.8	1.8	dry m. c. Sand	
29	29					1	10	1.8	1.8	1.8	dry m. c. Sand	
30	30					1	10	1.8	1.8	1.8	dry m. c. Sand	
31	31					1	10	1.8	1.8	1.8	dry m. c. Sand	
32	32					1	10	1.8	1.8	1.8	dry m. c. Sand	
33	33					1	10	1.8	1.8	1.8	dry m. c. Sand	
34	34					1	10	1.8	1.8	1.8	dry m. c. Sand	
35	35					1	10	1.8	1.8	1.8	dry m. c. Sand	
36	36					1	10	1.8	1.8	1.8	dry m. c. Sand	
37	37					1	10	1.8	1.8	1.8	dry m. c. Sand	
38	38					1	10	1.8	1.8	1.8	dry m. c. Sand	
39	39					1	10	1.8	1.8	1.8	dry m. c. Sand	
40	40					1	10	1.8	1.8	1.8	dry m. c. Sand	
41	41					1	10	1.8	1.8	1.8	dry m. c. Sand	
42	42					1	10	1.8	1.8	1.8	dry m. c. Sand	
43	43					1	10	1.8	1.8	1.8	dry m. c. Sand	
44	44					1	10	1.8	1.8	1.8	dry m. c. Sand	
45	45					1	10	1.8	1.8	1.8	dry m. c. Sand	
46	46					1	10	1.8	1.8	1.8	dry m. c. Sand	
47	47					1	10	1.8	1.8	1.8	dry m. c. Sand	
48	48					1	10	1.8	1.8	1.8	dry m. c. Sand	
49	49					1	10	1.8	1.8	1.8	dry m. c. Sand	
50	50					1	10	1.8	1.8	1.8	dry m. c. Sand	

NOTATION: SIZE AUGERS/CASING 6" SIZE SPOON 2"
 SIZE THIN-WALLED TUBE _____ SIZE CORE _____

N = NO. OF BLOWS TO DRIVE "SPOON" "WITH" LB. WEIGHT FALLING PER BLOW
 C = NO. OF BLOWS TO DRIVE "CASING" "WITH" LB. WEIGHT FALLING PER BLOW

FILL OUT BACK OF LOG AND SIGN YOUR NAME

MONITORING WELL RECORD

Well Permit No. 31 34119
Atlas Sheet Coordinates 31 03 197

OWNER IDENTIFICATION - Owner ENGRAPH INC
Address 1730 CAMDEN ROAD
City CHARLOTTE State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW3
County Burlington Municipality MOORESTOWN TWP Lot No. 1 Block No. 214E
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 6.1.90
Regulatory Program Requiring Well EDRA Case I.D. # BBC48
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) John Knox-O'Brien + Gere Tele. # 225-7380

WELL CONSTRUCTION

Total depth drilled 17.4 ft.
Well finished to 17.4 ft.

Borehole diameter:
Top 8 in.
Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling 8.3 ft.
Water level was measured using Water meter
Well was developed for 1 hours at 2 3/4 gpm
Method of development sub pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: NA

Drilling Method HSA

Drilling Fluid NA Type of Rig CME 75

Name of Driller Walt Ketter

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1316 EMPIRE SOILS INVESTIGATIONS

Name of Drilling Company

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	<u>0</u>	<u>7.4</u>	<u>4</u>	<u>PVC</u>
Outer Casing (Not Protective Casing)	<u></u>	<u></u>	<u></u>	<u></u>
Screen (Note slot size)	<u>7.4</u>	<u>17.4</u>	<u>4</u>	<u>PVC Slot 0/10</u>
Tail Piece	<u></u>	<u></u>	<u></u>	<u></u>
Gravel Pack	<u>5</u>	<u>17.4</u>	<u></u>	<u>Sand</u>
Annular Seal/Grout	<u>3</u>	<u>5</u>	<u></u>	<u>Bentonite</u>
Method of Grouting	<u>gravity</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

Log attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Walt Ketter 1316 Date 6/28/90

[illegible]

MONITORING WELL RECORD

Well Permit No. 31 34120
Atlas Sheet Coordinates 31 : 03 : 197

OWNER IDENTIFICATION - Owner ENGRAPH INC
Address 1930 CAMDEN ROAD
City CHARLOTTE State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW4
County Burlington Municipality MOORESTOWN TWP Lot No. 1 Block No. 214E
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 6.1.90

Regulatory Program Requiring Well EDRA Case I.D. # BBC48

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) John Knox - O'Brien + Gere Tele. # 225-7380

WELL CONSTRUCTION

Total depth drilled 17.4 ft.

Well finished to 17.4 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 9.2 ft.

Water level was measured using Watermeter

Well was developed for 1 hours at 3 gpm

Method of development sub pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: NA

Drilling Method ISA

Drilling Fluid NA Type of Rig CHE75

Name of Driller Walter Ketter

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1316

Name of Drilling Company EMPIRE SOILS INVESTIGATIONS

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	<u>0</u>	<u>7.4</u>	<u>4</u>	<u>PVC</u>
Outer Casing (Not Protective Casing)	<u></u>	<u></u>	<u></u>	<u></u>
Screen (Note slot size)	<u>7.4</u>	<u>17.4</u>	<u>4</u>	<u>PVC slot .010</u>
Tail Piece	<u></u>	<u></u>	<u></u>	<u></u>
Gravel Pack	<u>5</u>	<u>17.4</u>	<u>~</u>	<u>Sand</u>
Annular Seal/Grout	<u>3</u>	<u>5</u>	<u>~</u>	<u>Bentonite</u>
Method of Grouting	<u>gravity</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

Log
attached

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Walter Ketter 1316

Date

6/28/90

PROJECT _____
LOCATION Y2 Sheet _____ of _____

[illegible]

NOTATION: SIZE AUGERS/CASING 6" 1/4 SIZE SPOON 2"
SIZE THIN-WALLED TUBE _____ SIZE CORE _____

N = NO. OF BLOWS TO DRIVE	"SPOON	"WITH	lb.WEIGHT FALLING	PER BLOW
C = NO. OF BLOWS TO DRIVE	"CASING	"WITH	lb.WEIGHT FALLING	PER BLOW

FILL OUT BACK OF LOG AND SIGN YOUR NAME

302822



MONITORING WELL RECORD

Well Permit No. 31 - 35400
Atlas Sheet Coordinates 31 : 03 : 198

OWNER IDENTIFICATION - Owner LISS, HARVEY
Address 850 GLEN AVE.
City MOORESTOWN State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. W-1
County _____ Municipality MOORESTOWN TWP Lot No. 4 Block No. 214
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING/OBSERV. Date well completed 11/20/90
Regulatory Program Requiring Well EDRA Case I.D. # _____
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 15 ft.
Well finished to 14'6"

Borehole diameter:
Top 7 3/4 in.
Bottom 7 3/4 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 1'6" ft.

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling 6'1" ft.
Water level was measured using TAPE
Well was developed for _____ hours at _____ gpm
Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No
Pump capacity N/A gpm
Pump type: _____

Drilling Method Auger
Drilling Fluid _____ Type of Rig C.M.Z-55
Name of Driller JOHN SNYDER

Health and Safety Plan submitted? ☐ Yes ☒ No
Level of Protection used on site (circle one) None (D) C B A
N.J. License No. 1123
Name of Drilling Company JOHN SNYDER

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)	<u>1'6"</u>	<u>4'6"</u>	<u>1 1/2"</u>	<u>S.C.H. 40 P.V.C.</u>
Screen (Note slot size)	<u>4'6"</u>	<u>14'6"</u>	<u>1 1/2"</u>	<u>.040</u>
Tail Piece				
Gravel Pack	<u>3</u>	<u>14'6"</u>		<u>#2 SAND</u>
Annular Seal/Grout	<u>0</u>	<u>3</u>		<u>CEMENT SLURRY</u>
Method of Grouting	<u>+ BENEAL</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

<u>LT. BROWN, FINE SAND</u>	
<u>TR. CLAY, TR. F. GRAVEL</u>	
<u>DAMP, TAN WHITE (SAT. 6'4")</u>	<u>3'</u>
<u>TR. F/M GRAVEL CLAY</u>	<u>7'6"</u>
<u>SAT. ORANGE M/F SAND</u>	
<u>TR. to LITTLE CLAY</u>	
<u>+ CEMENTED SAND</u>	<u>13'6"</u>
<u>SAT. ORANGE CLAY, LITTLE</u>	
<u>V.F. SAND</u>	<u>4'</u>
<u>Most to SAT. LT. BROWN F. SAND</u>	
<u>LITTLE CLAY</u>	

END OF Bore 15

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature John Snyder

Date 11/27/90



MONITORING WELL RECORD

Well Permit No. 31 - 35401

Atlas Sheet Coordinates 31 : 03 : 199

OWNER IDENTIFICATION - Owner LISS, HARVEY
Address 850 GLEN AVE.
City MOORESTOWN State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. W-2
County _____ Municipality MOORESTOWN TWP Lot No. 4 Block No. 214
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 11/20/90
Regulatory Program Requiring Well EDPA Case I.D. # _____
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 15 ft.

Well finished to 15 ft.

Borehole diameter:

Top 12 in.

Bottom 12 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 6'3" ft.

Water level was measured using TAPE

Well was developed for 1 hours at 1 + gpm

Method of development PUMP

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A

Pump type: _____

Drilling Method AUGER

Drilling Fluid _____ Type of Rig C.M.E.-55

Name of Driller _____

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 1123

Name of Drilling Company JOHN SNYDER

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	—	—	—	—
Outer Casing (Not Protective Casing)	0	5	4"	Sch. 40 P.V.C.
Screen (Note slot size)	5	15	4"	P.V.C. .020
Tail Piece	—	—	—	—
Gravel Pack	4	15	—	#2 SAND
Annular Seal/Grout	0	4	—	Cement + Bentonite
Method of Grouting	—	—	—	—

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

ASPHALT 2" CRUSHED STONE 2'1" 2'3"
Damp to Moist, Lt. Brown F/m SAND TR. to LITTLE CLAY TR. ASPHALT Fragments 7'
SAT. LT. ORANGE BROWN F/m SAND, LITTLE CLAY 10'6"
SAT. ORANGE m/f SAND Some to LITTLE F/m GRAVEL TR. CLAY
END of BORING 15'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature _____

Date 11/27/90



MONITORING WELL RECORD

Well Permit No. 31 - 35402
Atlas Sheet Coordinates 31 : 03 : 19B

OWNER IDENTIFICATION - Owner

Address LISS, HARVEY
850 GLEN AVE.
City MOORESTOWN State NT Zip Code

WELL LOCATION - If not the same as owner please give address.

County Municipality MOORESTOWN TWP Lot No. 4 Block No. 214
Address

TYPE OF WELL (as per Well Permit Categories)

Date well completed 11/20/90

Regulatory Program Requiring Well MONITORING / OBSERVATION Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) EDRA Tele. #

WELL CONSTRUCTION

Total depth drilled 15 ft.

Well finished to 14'6" ft.

Borehole diameter:

Top 7 3/4 in.

Bottom 7 3/4 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface 1'6" ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 8'8" ft.

Water level was measured using TAPE

Well was developed for hours at gpm

Method of development

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method AUGER

Drilling Fluid Type of Rig C.M.E.-55

Name of Driller JOHN SNYDER

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1123

Name of Drilling Company JOHN SNYDER

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)	+ 1'6"	4'6"	1 1/2"	SCH 40 P.V.C.
Screen (Note slot size)	4'6"	14'5"	1 1/2"	.040 SLOT P.V.C.
Tail Piece				
Gravel Pack	3'	14'6"		#2 SAND
Annular Seal/Grout	0	3'		CEMENT SLURRY
Method of Grouting				+ BENESEAL

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

MIXED SAND & TOP SOIL	1'
DAMP TAN CLAYEY F/M SAND TR. F. / GRAVEL	3'
DAMP TAN F/M SAND	4'6"
DAMP TAN & ORANGE F/M SAND LITTLE CLAY LITTLE M/F GRAVEL 5'5" + 12'6"	
SAT. ORANGE CLAYEY FINE SAND	
END of Boring 15'	

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature [Signature]

Date 11/27/90

5

MONITORING WELL RECORD

Well Permit No. 31 : 32635
Atlas Sheet Coordinates 31 : 03 : 199 ☐

OWNER IDENTIFICATION - Owner Engraph Inc.
Address 263 S. Century Parkway
City Atlanta State Ga. Zip Code 30345

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County Buchington Municipality Moorestown Lot No. 1 Block No. 214E
Address 390 New Albany Rd. N.J.

TYPE OF WELL (as per Well Permit Categories) Monitoring Date well completed 12/13/89
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 16 ft.

Well finished to 14 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface NA ft.

Was steel protective casing installed? ☒ Yes ☐ No

Static water level after drilling 5' ft.

Water level was measured using Tape

Well was developed for 1 1/2 hours at 2 gpm

Method of development Continuous

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: NA

Drilling Method H.S.A

Drilling Fluid None Type of Rig B-61

Name of Driller Scott Hallabaurgh

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 51511

Name of Drilling Company Empire Soils Tex. Inc.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	4'	4"	PVC sch 40
Outer Casing (Not Protective Casing)	—	NA	—	—
Screen (Note slot size)	4'	14'	4"	PVC 20 slot.
Tail Piece	—	NA	—	—
Gravel Pack	3	16	#2	Marine Sand
Annular Seal/Grout	0	3	—	cement/bentonite/pellets
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0'-4' F-m sand, Tr. silt, Tr gravel
1" tan
4'-8' F-m sand Tr s. H.
1" tan
8'-16' F-m sand, Tr clay.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Scott Hallabaurgh Date 12-1-93

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302826

5

MONITORING WELL RECORD

Well Permit No. 31-32636
Atlas Sheet Coordinates 31-03-199 ☐

OWNER IDENTIFICATION - Owner Engraph Inc.
Address 263 S. Century Parkway
City Atlanta State Ga. Zip Code 30345

WELL LOCATION - If not the same as owner please give address. Owner's Well No. P-1
County Burlington Municipality Moorestown Lot No. 1 Block No. 214E
Address 390 New Albany Rd.

TYPE OF WELL (as per Well Permit Categories) Piezometer Date well completed 12/13/89
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 16 ft.

Well finished to 14' ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface NA ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 5' ft.

Water level was measured using Tape

Well was developed for 12 hours at 1 gpm

Method of development Centrifugal

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: NA

Drilling Method H.S.A.

Drilling Fluid None Type of Rig B-61

Name of Driller Scott Halabough

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 51511

Name of Drilling Company Empire Soils Inv. Inc.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	4'	4"	PVC sch 40
Outer Casing (Not Protective Casing)	—	NA	—	—
Screen (Note slot size)	4'	14'	4"	PVC 20 slot
Tail Piece	—	NA	—	—
Gravel Pack	3'	16'	#2	Morrie Sand
Annular Seal/Grout	0	3'	cement/bentonite/pellets	
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-12' f-m silty sand Br.
12'-16' silty clay Br.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Scott Halabough Date 12-1-93

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302827



MONITORING WELL RECORD

Well Permit No. 31 - 35001
Atlas Sheet Coordinates 31 : 03 : 199

OWNER IDENTIFICATION - Owner PSE & G CO.
Address 80 PARK PLAZA - 20 D
City NEWARK State NJ Zip Code 07101

WELL LOCATION - If not the same as owner please give address. Owner's Well No. T.B.-2
County _____ Municipality MOORESTOWN TWP Lot No. 2 Block No. 214-B
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 10/2/90
Regulatory Program Requiring Well BORING Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 26 ft.

Well finished to 26 ft.

Borehole diameter:
Top 7 3/4 in.
Bottom 2 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling 10' 3" ft.

Water level was measured using _____

Well was developed for _____ hours at _____ gpm

Method of development _____

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method Auger

Drilling Fluid _____ Type of Rig C.M.E.-55

Name of Driller JOHN SNYDER

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1123

Name of Drilling Company JOHN SNYDER

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>2</u>	<u>26</u>		<u>CEMENT GROUT</u>
Method of Grouting	<u>TREMIC</u>			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

<u>6" ASPHALT, 4" STONE</u>	<u>10'</u>
<u>DAND, GREEN BROWN, F. SAND</u>	
<u>LITTLE TO TR. CLAY</u>	<u>6'</u>
<u>DAND, TAN ORANGE F/C</u>	
<u>SAND, TR. CLAY</u>	
<u>SAT. 10' ±</u>	
<u>SAT. Lt. ORANGE F/M SAND</u>	<u>12'</u>
<u>LITTLE F/M GRVEL, TR. CLAY</u>	
<u>SAT. ORANGE, F. SAND</u>	
<u>SOME CLAY</u>	<u>19'</u>
<u>Moist to SAT. BLACK CLAY</u>	<u>24'</u>

END OF Boring 26

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature _____

Date 10/12/90



MONITORING WELL RECORD

Well Permit No. 31 - 35002
Atlas Sheet Coordinates 31 : 03 : 199

OWNER IDENTIFICATION - Owner PSE & G CO.
Address 80 PARK PLAZA 20 D
City NEWARK State NJ Zip Code 07101

WELL LOCATION - If not the same as owner please give address. Owner's Well No. T.B.-1
County _____ Municipality MOORESTOWN TWP Lot No. 2 Block No. 214-B
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 10/2/90
Regulatory Program Requiring Well BORING Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 40 ft.

Well finished to 40 ft.

Borehole diameter:

Top 7 3/4 in.

Bottom 2 in.

Well was finished: ☐ above grade

N/A ☐ flush mounted

If finished above grade, casing height: (stick up) above land surface N/A ft.

Was steel protective casing installed?

☐ Yes ☐ No N/A

Static water level after drilling 12 ft.

Water level was measured using _____

Well was developed for _____ hours at _____ gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method Auger

Drilling Fluid _____ Type of Rig C.M.E.-55

Name of Driller John Snyder

Health and Safety Plan submitted? ☐ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1123

Name of Drilling Company JOHN SNYDER

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>40'</u>		<u>CEMENT SLURRY</u>
Method of Grouting	<u>TRENIE</u>			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

2" ASPHALT, 6" CRUSHED STONE 8"
DAMP, BROWN, CLAYEY, F. SAND 36"
DAMP ORANGE BROWN F/M SAND & CLAY 76"
DAMP, LT. ORANGE M/F SAND LITTLE CLAY, TR F/M GRAVEL 12'
SAT. ORANGE & BROWN F/C SAND, TR. CLAY & F/M GRAVEL 23'
MOIST to SAT. BLACK CLAY TR. F. SAND
END of Bore 40'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature _____

Date 10/12/90

MONITORING WELL RECORD

Well Permit No. 31 - 30188
Atlas Sheet Coordinates 31 : 03 : 199

OWNER IDENTIFICATION - Owner PSE & G COMPANY
Address 80 PARK PLAZA
City NEWARK State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. T.B.-1A
County Municipality MOORESTOWN TWP Lot No. 2 Block No. 214K
Address

TYPE OF WELL (as per Well Permit Categories) Date well completed 5/23/92
Regulatory Program Requiring Well BORING Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Tele. #

WELL CONSTRUCTION

Total depth drilled 61 ft.

Well finished to 61 ft.

Borehole diameter:
Top 7 3/4 in.
Bottom 7 3/4 in.

Well was finished: ☐ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface 0 ft.

Was steel protective casing installed? ☐ Yes ☐ No

Static water level after drilling 9' ft.

Water level was measured using SO:1 SAMPLE

Well was developed for hours at gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity gpm

Pump type:

Drilling Method AUGER

Drilling Fluid Type of Rig C.M.E.-55

Name of Driller JOHN SNYDER

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) (B) C B A

N.J. License No. 1123

Name of Drilling Company JOHN SNYDER

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	0	61'		CEMENT SLURRY
Method of Grouting				

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

43' - 44' 3"	STONE 6"	9"
LT. BROWN, F. SAND, TR. F/M		
GRAVEL TR. CLAY		
TAN ORANGE, FINE SAND		3' 6"
SAT. LT. ORANGE TAN		12'
M/F SAND, TR. CLAY, TR. CEMENTED SAND		24'
MOIST ORANGE CLAY, TR. SILT		26'
MOIST, BLACK CLAY		48'
DAMP TO DRY, HARD, GRAY GREEN CLAY, TR. F.F. SAND		52'
MOIST, GRAY GREEN CLAY, LITTLE, F. SAND		55' 8"
MOIST, BLACK CLAY + MICH. SPECS.		

END of Boring 61'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature [Signature]

Date 5/28/92

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302830

2

MONITORING WELL RECORD

Well Permit No. 31 41068
Atlas Sheet Coordinates 31 : 03 : 199

OWNER IDENTIFICATION - Owner ERICO FASTENING SYSTEMS I
Address 211 EAST COUNTY LINE RD
City ABERDEEN State NC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. RW-3
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 313 Block No. 202
Address 301 NEW ALBANY ROAD MOORESTOWN, N.J. 08057

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 2/17/93
Regulatory Program Requiring Well MONITORING Case I.D. # 05257/87915

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) O'BRIEN + GERE Tele. # _____

WELL CONSTRUCTION

Total depth drilled 25.5 ft.

Well finished to 25.5 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing height (stick up) above land surface 2 ft.

Was steel protective casing installed? ☒ Yes ☐ No

Static water level after drilling 12 ft.

Water level was measured using TA

Well was developed for _____ hours at _____ gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HSA

Drilling Fluid N/A Type of Rig B-57

Name of Driller MATT RAAB

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None ☒ C B A

N.J. License No. T1577

Name of Drilling Company _____

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	<u>+2</u>	<u>10.5</u>	<u>4</u>	<u>STAINLESS</u>
Outer Casing (Not Protective Casing)	<u>N/A</u>			
Screen (Note c'nt size)	<u>10.5</u>	<u>25.5</u>	<u>4</u>	<u>STAINLESS .010</u>
Tail Piece	<u>N/A</u>			
Gravel Pack	<u>8.5</u>	<u>25.5</u>		<u>MORIE #1</u>
Annular Seal/Grout	<u>0</u>	<u>8.5</u>		<u>B. PELLETS/PORTLAND</u>
Method of Grouting	<u>TREMIE</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Matt Raab Date 3-1-93

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302831



2544D Morningside Dr.
West Columbia, SC 29169
Telephone: (803) 739-9853
Toll Free: (800) 242-6648
FAX: (803) 736-9698

Well # RW - 3 Date Drilled 2/17/93 Coordinate # 31.03.199 Permit # 31-41068 County
 Use Monitor Owner Erico Fastening Systems, Inc., New South Industries, 211 East County Line Rd. Aberdeen, NC
 Site Erico Fastening Systems, 301 New Albany Road, Morristown, NJ 08057
 Drilling Method HSA Sampling Method SS Hole Diameter 10" Total Depth 25.5'
 Gravel Pack Size Morie #1 Static Water Level 12' Casing Seal Portland & Pellets Open Hole
 Inner Casing Stainless Diameter 4" Length 15' Outer Casing Diameter Length
 Screen Type Stainless Slot .010 Diameter 4" Length 12' Geologic Formation

302832

10029

MONITORING WELL RECORD

Well Permit No. 31 44947
Atlas Sheet Coordinates 31 23 275OWNER IDENTIFICATION - Owner CHEVRON CHEMICAL CO.
Address 6001 BOLLINGER CANYON ROAD
City SAN RAMON State CA Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-5
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 1503 Block No. 2
Address 1130 North Church Street, Moorestown, N.J. 08057TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 9 / 28 / 94
Regulatory Program Requiring Well ISRA SITE Case I.D. # 93279CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Woodward-Clyde Consultants Tele. # _____

WELL CONSTRUCTION

Total depth drilled 13 ft.Well finished to 13 ft.

Borehole diameter:

Top 10 in.Bottom 10 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface -0- ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 6 ft.Water level was measured using TapeWell was developed for .5 hours at 7 gpmMethod of development CentrifugalWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Method AugersDrilling Fluid N/A Type of Rig CME-75Name of Driller Richard GurczynskiHealth and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. J1307Name of Drilling Company BURLINGTON ENVIRONMENTAL

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	-0-	3	4	PVC
Outer Casing (Not Protective Casing)	---	---	---	
Screen (Note slot size)	3	13	4	PVC, Sch.40, .010 Slot
Tail Piece	---	---	---	
Gravel Pack	2.5	13	10	Morie #1 Sand
Annular Seal/Grout	1.5 0	2.5 1.5	10 10	Bentonite Pellets Cement
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)0'-6' F & M Sand Gravel
6'-13' F & C Sand & Some Gravel
B.O.H. 13'I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature



Date

10-2-94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302833

#10029

MONITORING WELL RECORD

Well Permit No. 31 - 44948
Atlas Sheet Coordinates 31 : 03 : 275OWNER IDENTIFICATION - Owner CHEVRON CHEMICAL CO.
Address 6001 BOLLINGER CANYON ROAD
City SAN RAMON State CA Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-6
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 1563 Block No. 2
Address 1130 North Church Street, Moorestown, N.J. 08057TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 9 / 28 / 94
Regulatory Program Requiring Well ISRA SITE Case I.D. # 93279CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Woodward-Clyde Consultants Tele. # _____

WELL CONSTRUCTION

Total depth drilled 13 ft.Well finished to 13 ft.

Borehole diameter:

Top 10 in.Bottom 10 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface -0- ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 5 ft.Water level was measured using TapeWell was developed for .5 hours at 7 gpmMethod of development CentrifugalWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Method AugersDrilling Fluid N/A Type of Rig CME-75Name of Driller Richard GurczynskiHealth and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. J1307

Name of Drilling Company _____

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	-0-	3	4	PVC
Outer Casing (Not Protective Casing)	---	---	---	
Screen (Note slot size)	3	13	4	PVC, Sch 40, .010 Slot
Tail Piece	---	---	---	
Gravel Pack	2.5	13	10	Morie #1 Sand
Annular Seal/Grout	1.5 -0-	2.5 1.5	10	Bentonite Pellets Cement
Method of Grouting	Tremie			

GEOLOGIC LOG (Copies of other geologic logs and/or
geophysical logs should be attached.)

0'-6' F & M Sand Some Gravel

6'-13' F & C Sand and Gravel

B.O.H. 13'

BURLINGTON ENVIRONMENTAL

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.Driller's Signature Richard GurczynskiDate 10-7-94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302834

DEPARTMENT OF ENVIRONMENTAL PROTECTION

31-03-270

Permit No.

31-17333

Application No.

County

WELL RECORD

1. OWNER James R. Slim ADDRESS Marne Highway, Morestown
 Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Lot 2A Bl. 310 Morestown Twp. 2 mi. W. of Cerkerton
3. DATE COMPLETED Oct. 27, 1980 DRILLER Water Wells Co.
4. DIAMETER: top 4 Inches Bottom 4 Inches TOTAL DEPTH 205 Feet
5. CASING: Type Sched 40 P.V.C. Diameter 4 Inches Length 195 Feet
6. SCREEN: Type P.V.C. Size of Opening .030 Diameter 4 Inches Length 10 Feet
- Range in Depth { Top 145 Feet
 Bottom 205 Feet } Geologic Formation KMR
- Tail piece: Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
 Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 10-27-80 Yield 25 Gallons per minute
 Static water level before pumping 110 Feet below surface
 Pumping level 120 feet below surface after 2 hours pumping
 Drawdown 10 Feet Specific Capacity 2.5 Gals. per min. per ft. of drawdown
 How Pumped compressed Air How measured 5 gal. bucket
 Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
 Type Submersible Mfrs. Name Goulds
 Capacity 10 G.P.M. How Driven elec. H.P. 3/4 R.P.M. 3450
 Depth of Pump in well 135 Feet Depth of Footpiece in well _____ Feet
 Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches
10. USED FOR domestic AMOUNT { Average 350 Gallons Daily
 Maximum 700 Gallons Daily
11. QUALITY OF WATER good - Iron 2.8 P.P.M. Sample: Yes _____ No _____
Hardness 199.9
 Taste None Odor None Color clear Temp. _____ °F
12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Drillers Log
14. DATA OBTAINED BY Howard Farmer Date 11-24-80

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302835

#10039

New Jersey Department of Environmental Protection and Energy
Bureau of Water Allocation

h

MONITORING WELL RECORD

Well Permit No. 31 - 43077

Atlas Sheet Coordinates 31 : 03 : 278

OWNER IDENTIFICATION - Owner CHEVRON CHEMICAL CO.

Address 6021 BOLLINGER CANYON ROAD

City SAN RAMON

State CA

Zip Code

WELL LOCATION - If not the same as owner please give address.

Owner's Well No. HW-4

County

Municipality

Lot No.

Block No.

Address BURLINGTON 1130 NORTH CHURCH ST, MOORESTOWN TWP, MOORESTOWN, NJ 08057

TYPE OF WELL (as per Well Permit Categories)

Date well completed 12/16/93

Regulatory Program Requiring Well

MONITORING

Case I.D. # 93279

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) DEBORAH CLYDE CONSULTANTS Tele. #

WELL CONSTRUCTION

Total depth drilled 13 ft.

Well finished to 13 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 4.2 ft.

Water level was measured using TAPE

Well was developed for hours at gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method AUGER

Drilling Fluid N/A Type of Rig CHE-75

Name of Driller ANDRE BOUTONNE

Health and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None ☒ D ☐ C ☐ B ☐ A

N.J. License No. 11400

Name of Drilling Company

BURLINGTON ENVIRONMENTAL

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Date

12-20-93

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302836

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.) [From land surface]	Diameter (inches)	Type and Material
Inner Casing	3	3.0	4	PVC
Outer Casing (Not Protective Casing)	—	—	—	
Screen (Note slot size)	3.0	13.0	4	PVC, 5/8" x 40, 0.01054" slot
Tail Piece	—	—	—	
Gravel Pack	2.5	13.0	10	#0 MORTAR SAND
Annular Seal/Grout	1.5	2.5	10	CEMENT & BENTONITE
Method of Grouting	TRENIE			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0-0.5' TOP SOIL
1.5'-4.0' CLAYEY SILT & SAND
4.0-13.0' SAND w/ SOME
SILT & GRAVEL.



31.03.411

HANDEX CORP., 703 Ginesi Drive, Morganville, New Jersey 07751

BORING LOG

Well No. OW#1 Permit No. 31-26695
Date Drilled 4/22/87 County Burlington Use Monitoring
Location Atlantic Service Station, Rt. 73 & Princeton Avenue, Maple Shade, New Jersey
Owner Mid State Equipment Company Address 1000 S. 50th St., Philadelphia, PA
Drilling Method augers Sampling Method cuttings
Hole Diameter 8" Total Depth 14'
CASING: Type PVC Schedule 40 Diameter 4" Length 2'
SCREEN: Type PVC Schedule 40 Slot 20 Diameter 4" Length 12'
Gravel Pack Size #1 Casing Seal bentonite Static Water Level

DEPTH BELOW SURFACE	SAMPLE NUMBER	BLOWS PER 6" ON SAMPLER	WELL DESIGN	IDENTIFICATION OF SOILS/REMARKS
				Casing
				0' - 2" Asphalt
				2" - 3' Brown to light green CLAY, trace silt
				3' - 10' Brown CLAY, some silt, (moist, slight gas odor)
10'			SCREEN	10' - 14' Brownish red SILT, some clay, trace fine sand, (moist)
20'				
30'				
40'				

302837



BORING LOG

Well No.	OW#2	Permit No.	31-26696
Date Drilled	4/22/87	County	Burlington
Location	Atlantic Service Station, Rt. 73 & Princeton Avenue, Maple Shade, New Jersey		
Owner	Mid State Equipment Company	Address	1000 S. 50th St., Philadelphia, PA
Drilling Method	augers	Sampling Method	cuttings
Hole Diameter	8"	Total Depth	14'
CASING: Type	PVC Schedule 40	Diameter	4"
		Length	2'
SCREEN: Type	PVC Schedule 40	Slot	20
		Diameter	4"
		Length	12'
Gravel Pack Size	#1	Casing Seal	bentonite
		Static Water Level	

[illegible]

302838

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCESPermit No. 31-8545
Application No. _____
County _____

31-03-412

WELL RECORD

1. OWNER Vincent Santora ADDRESS Rt. 73 Cinnaminson, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION SAME
3. DATE COMPLETED Feb. 4, 1975 DRILLER Frank Fonte
4. DIAMETER: top 4 inches Bottom 4 inches TOTAL DEPTH 108 Feet
5. CASING: Type pvc Diameter 4 inches Length 98 Feet
6. SCREEN: Type pvc Size of Opening 15 Diameter 4 inches Length 10 Feet
Range in Depth { Top _____ Feet Geologic Formation cohansy
Bottom _____ Feet
- Tail piece Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date Feb. 4, 1975 Yield 10 Gallons per minute
Static water level before pumping 49 Feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
Now Pumped _____ Now measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type Sub. Mfrs. Name burks
Capacity 10 G.P.M. Now Driven electric H.P. 1/2 R.P.M. 3400
Depth of Pump in well 60 Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Domestic AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER good Sample: Yes _____ No _____
Taste none Odor none Color clear Temp. 57 of _____
12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA _____
14. DATA OBTAINED BY _____ Date 4/4/75

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302839

MONITORING WELL RECORD

Well Permit No. 31 79246
Atlas Sheet Coordinates 3 05 413 ☐

OWNER IDENTIFICATION - Owner MOORESTOWN TOWNSHIP
Address 111 WEST END STREET
City MOORESTOWN State NE Zip Code 08057

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B# 30
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 74 Block No. 20
Address Foot of Pine St. AT Cottage Ave.

TYPE OF WELL (as per Well Permit Categories) SPRING Date well completed 6/8/92
Regulatory Program Requiring Well SPRING Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Tele. #

WELL CONSTRUCTION

Total depth drilled 40 ft.

Well finished to ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☒ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 7'7 ft.

Water level was measured using Tape

Well was developed for hours at gpm

Method of development

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity gpm

Pump type:

Drilling Method HSA

Drilling Fluid Type of Rig Rotary

Name of Driller P. Flaherty / L. D. Polio

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. B0232

Name of Drilling Company SITE ENGINEERS, INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	50	8	BENTONITE/CEMENT
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout				
Method of Grouting	Slurry Bentonite/Cement			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

SEE ATTACHED LOG
AND LOCATION PLAN

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Samuel P. Polio

Date

6-18-92

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302840



SITE engineers, inc.

TEST BORING LOG

PROJECT WATER POLLUTION CONTROL PROJECT
LOCATION MOORESTOWN, NJBORING B-30
G.S. ELEV. _____
FILE LV 6509-03
SHEET 1 OF 1

GROUND WATER DATA			
FIRST ENCOUNTERED 7'			
DEPTH	HOUR	DATE	ELAPSED TIME
7'	1530	6-8	30 MIN

METHOD OF ADVANCING BORE HOLE			
a	FROM 0	TO 10'	
d	FROM 10'	TO 40'	
	FROM	TO	
	FROM	TO	
	FROM	TO	

DRILLER P. FLAHERTY
HELPER S. POPELACK
INSPECTOR L. DiFollio
DATE STARTED 6-8-92
DATE COMPLETED 6-8-92

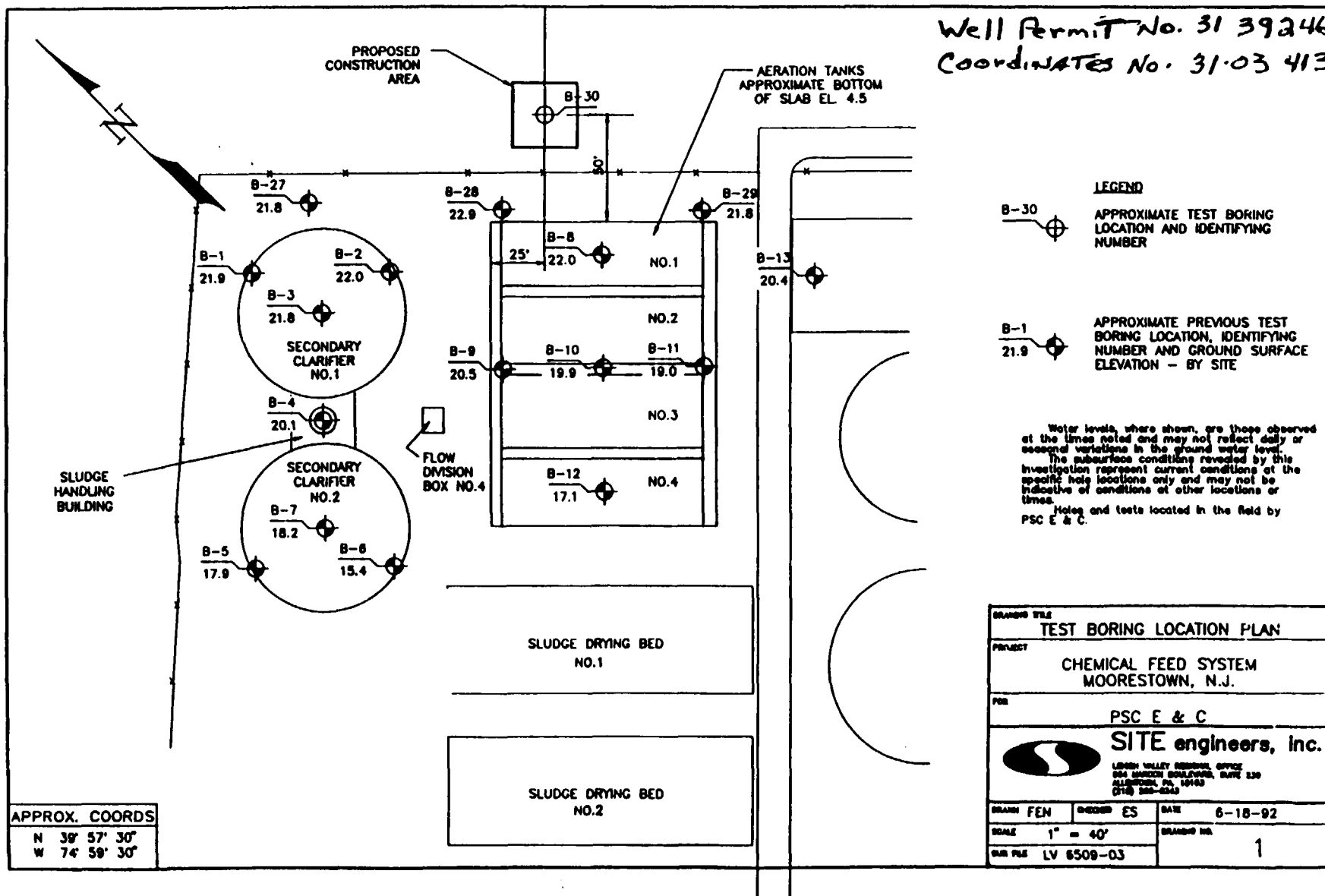
DEPTH	A	B	C	DESCRIPTION	REMARKS
		3-4			
	S-1	5-7		BROWN SILTY F/M SAND, SM	
		4-3		F/GRAVEL	
	S-2	7-10			
		4-6			
5	S-3	5-7			
		18-20	7'		
	S-4	25-31		BROWN F/M/C SAND AND F/GRAVEL,	
		25-26		TR SILT	
10	S-5	39-41			
			12'		
15	S-6	7-7-13			
20	S-7	6-8-12		GRAY-BLACK SILT, SM F/SAND,	
				TR CLAY, TR MICA	
25	S-8	10-11-12			
30	S-9	16-18-19			
35	S-10	18-22-28			
40	S-11	22-26-25			
				END OF BORING AT 40'	
45					

Permit No. 31 39 246
COOKL. NO. 3103 413

FOR GENERAL NOTES SEE KEY SHEET AND LOCATION PLAN.

DRN. _____
CKD. 302841

302842



DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD

31-03-4 14
Permit No. 31-1376
Application No. _____
County _____

1. OWNER Trusciano Dominick Trusciano ADDRESS Mount EMERY Laurel Road,
R. F. D. Moorestown, N. J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Same
3. DATE COMPLETED 5-18-54 5-18-54 DRILLER Gas Hauser Gas Hauser
4. DIAMETER: Top 3 Inches Bottom 3 Inches TOTAL DEPTH 100 Feet
5. CASING: Type std blk. steel pipe Diameter 3 Inches Length 92 Feet
~~OTHER THAN STANDARD PIPE~~ Size of None used
6. SCREEN: Type XXXXXX Opening 2x Diameter _____ Inches Length _____ Feet
Range in Depth { Top _____ Feet Geologic Formation _____
Bottom _____ Feet
Tail piece. Diameter None Inches Length _____ Feet
7. WELL FLOWS NATURALLY No Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 5-19-54 Yield about 60 Gallons per minute
Static water level before pumping 33 Feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown Could not check Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped 60 Cu. Ft. PP M Air compressor How measured 55 gallon drum
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT: Yes
Type Deep well jet pump Capacity _____ Gallons per minute
How Driven Electric Horse Power 1/2 H.P.M.
Depth of pump in well 42 Feet Depth of Foot-piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR Domestic
AMOUNT { Average 200 Gallons Daily
Maximum 300 Gallons Daily
11. QUALITY OF WATER Good Sample: Yes X
Taste Good Odor None Color Clear Temperature 70 F.
12. LOG 11 cases see reverse side Are logs available? No
(Give details on back of sheet or on separate sheet)
13. SOURCE OF DATA Our well records
14. DATA OBTAINED BY Gas Hauser DATE 5-20-54

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)



9

MONITORING WELL RECORD

Well Permit No. 31 - 35240
Atlas Sheet Coordinates 31 : 05 : 415 ☐

OWNER IDENTIFICATION - Owner EASTERN LIFT TRUCK CO.
Address ROUTE 73
City MAPLESHADE State NJ Zip Code 08052

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County _____ Municipality MAPLE SHADE TWP Lot No. 2 Block No. 77-C
Address SAME

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 10 / 30 / 90
Regulatory Program Requiring Well LST Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Geotech Environmental Inc. Tele. # (609) 667-6010

WELL CONSTRUCTION

Total depth drilled 64 ft.

Well finished to 64 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 56 ft.

Water level was measured using tape measure

Well was developed for _____ hours at _____ gpm

Method of development _____

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method Hollow stem auger

Drilling Fluid _____ Type of Rig CME B45

Name of Driller Ken Grosshans

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. J-1528

Name of Drilling Company GEOTECH INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	54	2	PVC
Outer Casing (Not Protective Casing)	none			
Screen (Note slot size)	54	64	2	0.010" PVC
Tail Piece	none			
Gravel Pack	51	64	8	
Annular Seal/Grout	0	51	8	5' Bentonite/46' grout
Method of Grouting	PRESSURE GROUT.			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

See attached log

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Ken Grosshans Date 12/7/90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302844

GEOTECH, INC.

FIELD RECORD OF SOIL EXPLORATION

JOB NO. E 1826 PROJ. Eastern Fork BORING NO. 1 DEPTH 64' 11" ELEV.

DATE STARTED 11-29-90 DATE COMPLETED 12-30-90 DATUM

CASING HAMMER WT. LBS. DROP SAMPLER HAMMER WT. 140 LBS. DROP 30

METHOD OF ADVANCING BORING	DEPTH	SAMPLE CONDITION	SAMPLE TYPES
1 <u>PS</u>	<u>0-6</u>	<input checked="" type="checkbox"/> DISTURBED	SS - 2" O.D. SPLIT SPOON
2 <u>HS</u>	<u>0-64</u>	<input type="checkbox"/> FAIR	TW - 3" O.D. THIN WALLED TUBE
3 <u>Good</u>	<u>64-69' 11"</u>	<input type="checkbox"/> GOOD	AS - AUGER SAMPLE
		<input type="checkbox"/> LOST	RS - ROCK CORE
			WS - WASH SAMPLE
			CS - CHUNK SAMPLE

SOIL DESCRIPTION	DEPTH ELEV.	CAS. BLOWS FT.	DEPTH SCALE	SAMPLES				BLOWS / 6" FORCE	NOTES
				S.C.	S.T.	NO.	REC.		
0-1' Gravel				X	SS	1		6-5-10-10	TIME <u>00:00</u> DEPTH <u>54' 35 1/2</u> W.L. <u>55' 00" comp</u>
1-4' Fill Ben Silt. to fin sand, to gravel			5	X	SS	2		12-21-24-19	
				X	SS	3		14-15-15-16	
4-56' Gravelly Ben Med (xsm silt, to clay, to fin sand)			10	X	SS	4		9-10-15	
			15	X	SS	5		7-10-15	
56-64' 11" Dry/White fin med sand to silt.			20	X	SS	6		6-8-12	
			25	X	SS	7		4-4-7	
			30	X	SS	8		10-12-18	
			35	X	SS	9		11-14-18	
			40	X	SS	10		10-12-18	
			45	X	SS	11		10-14-16	INSP. <u>123</u> DRLR. <u>500</u> HLPR. <u>500</u> TIME <u>comp</u> DEPTH <u>64' 11"</u> W.L. <u>56</u>
			50	X	SS	12		7-12-18	

302845

GEOTECH, INC.

FIELD RECORD OF SOIL EXPLORATION

JOB NO. E1526 PROJ. Eastern Fork Lift BORING NO. 1 DEPTH 64' 11" ELEV.
 DATE STARTED 10-29-90 DATE COMPLETED 10-30-90 DATUM
 CASING HAMMER WT. LBS. DROP SAMPLER HAMMER WT. 140 LBS. DROP 80

METHOD OF ADVANCING BORING	DEPTH	SAMPLE CONDITION	SAMPLE TYPES
1 <u>RS</u>	<u>0 - 6</u>	<input checked="" type="checkbox"/> DISTURBED	SS - 2" O.D. SPLIT SPOON
2 <u>RS</u>	<u>0 - 64</u>	<input checked="" type="checkbox"/> FAIR	TW - 3" O.D. THIN WALLED TUBE
3 <u>Spur</u>	<u>64 - 64' 11"</u>	<input checked="" type="checkbox"/> GOOD	AS - AUGER SAMPLE
		<input type="checkbox"/> LOST	RS - ROCK CORE
			WS - WASH SAMPLE
			CS - CHUNK SAMPLE

SOIL DESCRIPTION	DEPTH ELEV.	CAS. BLOWS FT.	DEPTH SCALE	SAMPLES				BLOWS / 8" FORCE	NOTES
				S.C.	S.T.	NO.	REC.		
	0'								TIME DEPTH W.L.
	6'		5	X	3	13		6-8-14	
	60'		60	X	33	14		24-35-100/1	
	60'		60	X	33	15		14-100/5	
Solid PVC	0'		0					6' 54' solid PVC	
	0'		0					54' - 64' Perf PVC	
	0'		0					0' Flt steel	
	0'		0					10' - 46' cement	
Perf PVC #10	46'		0					46' - 51' Bolt Pallet	
	51'		0					51' - 64' Sand	
cap	0'		0						
	0'		0						
	0'		0						
	0'		0						

INSR. 15
 DRLR 15
 HLPR 15
 TIME comp
 DEPTH 64' 11"
 W.L. 52'

302846

MONITORING WELL RECORD

Well Permit No. 31 34452
Atlas Sheet Coordinates 31 : 03 : 416 ☐

OWNER IDENTIFICATION - Owner KIRSCHNER BROTHERS CO
Address FOUR FALLS CORP CENTER
City WEST CONSHOCKEN State PA Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. _____
County _____ Municipality MAPLE SHADE TWP Lot No. 6 Block No. 193
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 7 / 19 / 90
Regulatory Program Requiring Well AT OBS WELL Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) ROUX Tele. # 516-673-7200

WELL CONSTRUCTION

Total depth drilled 30 ft.

Well finished to 30 ft.

Borehole diameter:

Top 6 in.

Bottom 6 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 18 ft.

Water level was measured using METER

Well was developed for 1 hours at .25 gpm

Method of development PUMP

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AUGER

Drilling Fluid NONE Type of Rig MOBIL DRILL

Name of Driller BILL GUISEPPE

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J1468

Name of Drilling Company WILLIAM GUISEPPE

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	5	2	SCH 40 PVC FJT
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	5	30	2	SCH 40 PVC FJT .02
BENTONITE Tail Piece	3	5		PELLETS
Gravel Pack	5	30		MORIE GRAVEL
Annular Seal/Grout	0	3		PORTLAND I
Method of Grouting	SLURRY			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-30' TAN SAND

I certify that I have drilled the above-reference well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature William J. Guiseppe Date 7/27/90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302847



MONITORING WELL RECORD

Well Permit No. 31 - 36137
Atlas Sheet Coordinates 31 : 03 : 416

OWNER IDENTIFICATION - Owner KIRSCHNER BROG., OIL CO.
Address BLDG. 200, SUITE 115 FOUR FALLS
City WEST CONSHOHOCKEN State PA Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MJ #1
County Burlington Municipality HAPLE SHADE TWP Lot No. 6 Block No. 193
Address Rt 73 + Waverly Ave

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 3 27&28/ 91
Regulatory Program Requiring Well UST Case I.D. # 75728
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Kirschner Bro. Company Tele. # 215-527-4200

WELL CONSTRUCTION

Total depth drilled 24 ft.

Well finished to 24 ft.

Borehole diameter:
Top 10 in.
Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed? ☐ Yes ☒ No

Static water level after drilling 16 ft.

Water level was measured using METER

Well was developed for 1 hours at 3 gpm

Method of development PUMPING

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AUGER

Drilling Fluid NONE Type of Rig MOBIL B-40L

Name of Driller GREGG MYERS

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. J1472

Name of Drilling Company GREGG MYERS

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	10	4	PVC SCH 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	10	24	4	PVC SCH 40 .02
BENTONITE Tail Piece	8	10		PELLETS
Gravel Pack	10	24		MORIE GRAVEL
Annular Seal/Grout	0	8		PORTLAND I
Method of Grouting	PRESSURE GROUT			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0 - 12' overburden
12 - 14' gray dry clay
14' - 24' tan sand

Water 16'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Gregg Myers (MAW) Date 4-17-91



MONITORING WELL RECORD

Well Permit No. 31 - 96138
Atlas Sheet Coordinates 31 : 03 : 416

OWNER IDENTIFICATION - Owner KIRSCHNER BROS., OIL CO.
Address BLDG. 200, SUITE 115 FOUR FALLS
City WEST CONSHOHOCKEN State PA Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW #2
County Burlington Municipality MAPLE SHADE TWP Lot No. 6 Block No. 193
Address Rt 73 & Waverly Ave

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 3/27&28 91
Regulatory Program Requiring Well UST Case I.D. # 75728

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Kirschner Bros. Company Tele. # 215-527-4200

WELL CONSTRUCTION

Total depth drilled 24 ft.

Well finished to 24 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 16 ft.

Water level was measured using METER

Well was developed for 1 hours at 1/2 gpm

Method of development PUMPING

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AUGER

Drilling Fluid NONE Type of Rig MOBILE B-40L

Name of Driller GREGG MYERS

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J1472

Name of Drilling Company GREGG MYERS

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	10	4	PVC SCH 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	10	24	4	PVC SCH 40 .02
BENTONITE Tail Piece	3	10		PELLETS
Gravel Pack	10	24		MORIE GRAVEL
Annular Seal/Grout	0	8		PORTLAND I
Method of Grouting	PRESSURE GROUT			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0-12' overburden
12'-14' gray dry clay
14'-24' tan sand.

water 16'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Gregg Myers (MAW)

Date 4-17-91



MONITORING WELL RECORD

Well Permit No. 31 36488
Atlas Sheet Coordinates 31 : 03 : 416

OWNER IDENTIFICATION - Owner KIRSCHNER BROTHERS CO
Address 200 FOUR FALLS CORP, SUITE 115
City WEST CONSHOHOCKEN State PA Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MU #11
County _____ Municipality MAPLE SHADE TWP Lot No. 1 Block No. 189AC
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 5/30/91
Regulatory Program Requiring Well UST Case I.D. # UST75728

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Kirschner Brothers Tele. # 215-527-1873 4200

WELL CONSTRUCTION

Total depth drilled 28 ft.

Well finished to 28 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling 116'5 ft.

Water level was measured using meter

Well was developed for 1 hours at _____ gpm

Method of development pumping

Was permanent pumping equipment installed? ☐ Yes ☐ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method Auger

Drilling Fluid None Type of Rig Mobil B-61

Name of Driller Dennis Moore

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1471

Name of Drilling Company B.L. MYERS BROS., INC.

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	<u>0</u>	<u>8</u>	<u>4</u>	<u>PVC SCH 40</u>
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	<u>8</u>	<u>28</u>	<u>4</u>	<u>PVC SCH 40.02</u>
<u>Bentonite Tail Piece</u>	<u>6</u>	<u>8</u>		<u>Pellets</u>
Gravel Pack	<u>8</u>	<u>28</u>		<u>mine Gravel</u>
Annular Seal/Grout	<u>0</u>	<u>6</u>		<u>Portland T</u>
Method of Grouting	<u>Pressure Grout</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0-1 Asphalt
1-3 Orange Sandy Silty Clay
3-5 Green Gray Silty sands
5-6 Brown Slightly silty sands
6-7 Tan Silty Sandy Clay
7-9 Orange Brown Silty Sandy clay
with small white stones
9-10 Orange Silty Sandy Clay
10-12 Brown Silty Sandy Clay
12-16 Dark Brown Silty sand clay
16-20 Brown silty sands
20-28 Dark Brown Sandysilty clay

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Dennis Moore (MAW)

Date 6-91

**FOR IRRIGATION
PURPOSES ONLY**

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

Coord: 3103421

31-21731

PERMIT NO. 3103421

APPLICATION NO. ✓

Burlington

COUNTY

WELL RECORD

1. OWNER LEONBAG, KURT ADDRESS LENOLA RD.

Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)

2. LOCATION Lot: 7C Block: 199 Municipality: Moorestown Twp.

3. DATE COMPLETED 7/11/84 DRILLER Robbins Water Service

4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 215 Feet

5. CASING: Type PVC Diameter 4 inches Length 215 Feet

6. SCREEN: Type PVC Size of Opening 020 Diameter 4 inches Length 20 Feet

Range in Depth { Top 195 Feet
Bottom 215 Feet

Geologic Formation santon

Tail Piece: Diameter _____ inches Length _____ Feet

7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface

Water rises to _____ Feet above surface

8. RECORD OF TEST: Date 7/11/84 Yield 70 Gallons per minute

Static water level before pumping 60 Feet below surface

Pumping level _____ feet below surface after _____ hours pumping

Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown

How pumped blown How measured _____

Observed effect on nearby wells _____

9. PERMANENT PUMPING EQUIPMENT:

Type _____ Mfrs. Name _____

Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____

Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet

Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches

10. USED FOR irrigation AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily

11. QUALITY OF WATER _____ Sample: Yes _____ No _____

Taste _____ Odor _____ Color _____ Temp. _____ °F.

12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)

13. SOURCE OF DATA _____

14. DATA OBTAINED BY Robbins Water Serv. Date 7/11/84

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302851

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

31.03.4 22
Permit No. 31-3428
Application No. _____
County _____

WELL RECORD

1. OWNER Mrs J. Lawrenson ADDRESS N. Lenola Rd. Moores Town, N. J.
Owner's Well No. 2 SURFACE ELEVATION 50 Feet
(Above mean sea level)
2. LOCATION N. side of her Farm House on N. Lenola Rd.
3. DATE COMPLETED Nov. 27, 1957 DRILLER Haines & Moore
4. DIAMETER: top 4 Inches Bottom 4 Inches TOTAL DEPTH 75 Feet
5. CASING: Type bl. steel pipe Diameter 4 Inches Length 61 Feet
6. SCREEN: Type slotted Size of Opening 20 Diameter 3 3/4 Inches Length 6 Feet
Range { Top 68 Feet Geologic Formation _____
Bottom 74 Feet
- Tail piece. Diameter 3 Inches Length 1 Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date Nov. 26, '57 Yield 20 Gallons per minute
Static water level before pumping 35 Feet below surface
Pumping level 45 feet below surface after 5 hours pumping
Drawdown 10 Feet Specific Capacity 2 Gals. per min. per ft. of drawdown
How Pumped with well machine How measured time to fill a container
Observed effect on nearby wells No nearby wells
9. PERMANENT PUMPING EQUIPMENT:
Type Jet Mfrs. Name Myers
Capacity 18 G.P.M. How Driven Electric H.P. 1 R.P.M. 3450
Depth of Pump in well 44 Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Depth of Meter on Pump _____
10. USED FOR Farm use AMOUNT Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No *
Taste Irony Odor none Color clear Temp. 56 °F
12. LOG _____ Are samples available No *
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Well drillers record
14. DATA OBTAINED BY Earl L. Moore Date Dec. 3, 1957

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302852

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

COORD: 31.03 426
PERMIT NO. 322 F010-2
APPLICATION NO. _____
COUNTY _____

FOR MONITORING PURPOSES ONLY

WELL RECORD

1. OWNER Mark Shade Temp ADDRESS Bingham Court
Owner's Well No. 1 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Bingham Court
3. DATE COMPLETED 2-3-88 DRILLER Charles C. Kramer
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 34 Feet
5. CASING: Type PVC Diameter 4 inches Length 18 Feet
6. SCREEN: Type PVC Size of Opening 020 Diameter 4 inches Length 15 Feet
- Range in Depth { Top 18 Feet
Bottom 33 Feet
- Geologic Formation _____
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 2-3-88 Yield 1 Gallons per minute
Static water level before pumping 15.0 Feet below surface
Pumping level 30 feet below surface after 1/2 hours pumping
Drawdown 15 Feet Specific Capacity .07 Gals. per min. per ft. of drawdown
How pumped sub How measured 5 gal per
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Monitoring AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG _____ Are samples available? yes
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Eastern Drilling Co
14. DATA OBTAINED BY Charles Kramer Date 2-3-88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302853

Did Not Drill

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

COORD: 31.83 426

PERMIT NO. 3628011

APPLICATION NO. _____

COUNTY _____

FOR MONITORING PURPOSES ONLY

WELL RECORD

1. OWNER Mark Shate ADDRESS _____
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)

2. LOCATION _____

3. DATE COMPLETED _____ DRILLER Charles C. Kender

4. DIAMETER: Top _____ inches Bottom _____ inches TOTAL DEPTH _____ Feet

5. CASING: Type _____ Diameter _____ Inches Length _____ Feet

6. SCREEN: Type _____ Size of Opening _____ Diameter _____ Inches Length _____ Feet

Range in Depth { Top _____ Feet
Bottom _____ Feet
Geologic Formation _____

Tail Piece: Diameter _____ Inches Length _____ Feet

7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface

Water rises to _____ Feet above surface

8. RECORD OF TEST: Date _____ Yield _____ Gallons per minute

Static water level before pumping _____ Feet below surface

Pumping level _____ feet below surface after _____ hours pumping

Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown

How pumped _____ How measured _____

Observed effect on nearby wells _____

9. PERMANENT PUMPING EQUIPMENT:

Type _____ Mfrs. Name _____

Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____

Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet

Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches

10. USED FOR _____ AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily

11. QUALITY OF WATER _____ Sample: Yes _____ No _____

Taste _____ Odor _____ Color _____ Temp. _____ °F.

12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)

13. SOURCE OF DATA _____

14. DATA OBTAINED BY _____ Date _____

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated,
analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302854

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

COORD: 31.05426
PERMIT NO. 342802-9
APPLICATION NO. _____
COUNTY _____

FOR MONITORING PURPOSES ONLY WELL RECORD

1. OWNER Mark Shade ADDRESS P.O. Box 368 08052
Owner's Well No. 3 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Bingham
3. DATE COMPLETED 2-4-88 DRILLER Charles Kramer
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 20-0 Feet
5. CASING: Type PVC Diameter 4 inches Length 3.5 Feet
6. SCREEN: Type PVC Size of Opening 020 Diameter 4 inches Length 15 Feet
- Range in Depth { Top 3.5 Feet
Bottom 18.5 Feet
- Geologic Formation _____
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 2-4-88 Yield 1.5 Gallons per minute
Static water level before pumping 6.2 Feet below surface
Pumping level 15 feet below surface after 1/2 hours pumping
Drawdown 8.8 Feet Specific Capacity .17 Gals. per min. per ft. of drawdown
How pumped sub How measured 5 gal pul
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
- Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Monitoring AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG _____ Are samples available? Yes
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Eastern Drilling Co
14. DATA OBTAINED BY Charles Kramer Date 2-4-88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302855

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

COORD: 31-03-126
PERMIT NO. 312913-7
APPLICATION NO. _____
COUNTY _____

FOR MONITORING PURPOSES ONLY WELL RECORD

1. OWNER Mark Shade ADDRESS Box 368
Owner's Well No. 4 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Bingham
3. DATE COMPLETED 2-12-88 DRILLER Charles Kramer
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 21 Feet
5. CASING: Type PVC Diameter 4 inches Length 5 Feet
6. SCREEN: Type PVC Size of Opening 020 Diameter 4 inches Length 15 Feet
- Range in Depth { Top 5 Feet
Bottom 15 Feet
- Geologic Formation _____
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 2-12-88 Yield 2.0 Gallons per minute
Static water level before pumping 7.8 Feet below surface
Pumping level 17.0 feet below surface after 1/2 hours pumping
Drawdown 9.2 Feet Specific Capacity 0.22 Gals. per min. per ft. of drawdown
How pumped sub How measured 5 gal pot
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
- Type _____ Mfrs. Name _____
Capacity _____ G.P.M. Horse Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Monitoring AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG _____ Are samples available? Yes
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Eastern Dilling &
14. DATA OBTAINED BY Charles Kramer Date 2-12-88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302856

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

COORD: 31.33 426
PERMIT NO. 3128014-5
APPLICATION NO. _____
COUNTY _____

FOR MONITORING PURPOSES ONLY

WELL RECORD

1. OWNER Mark Shade ADDRESS P.O. Box 368
Owner's Well No. 1 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Cornell Ave
3. DATE COMPLETED 2-15-88 DRILLER Charles Kramer
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 33 Feet
5. CASING: Type PVC Diameter 4 inches Length 12 Feet
6. SCREEN: Type PVC Size of Opening _____ Diameter 4 inches Length 20 Feet
- Range in Depth { Top 12 Feet
Bottom 32 Feet
- Geologic Formation _____
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 2-15-88 Yield 1.0 Gallons per minute
Static water level before pumping 24.7 Feet below surface
Pumping level 30.0 feet below surface after 1/2 hours pumping
Drawdown 5.3 Feet Specific Capacity .19 Gals. per min. per ft. of drawdown
How pumped sub How measured 5 gal/pal
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Monitoring AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG _____ Are samples available? Yes
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Eastern Drilling Co
14. DATA OBTAINED BY Charles Kramer Date 2-15-88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302857

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

COORD: 31.03 426

PERMIT NO. 3428015

APPLICATION NO. _____

COUNTY _____

FOR MONITORING PURPOSES ONLY

WELL RECORD

1. OWNER Maple Shade ADDRESS P.O. Box 368
Owner's Well No. 2 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Cornell Ave.
3. DATE COMPLETED 2-16-88 DRILLER Charles Kanner
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 24 Feet
5. CASING: Type PVC Diameter 4 inches Length 8 Feet
6. SCREEN: Type PVC Size of Opening 020 Diameter 4 inches Length 15 Feet
- Range in Depth { Top 8 Feet
Bottom 23 Feet
- Geologic Formation _____
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 2-16-88 Yield 2.0 Gallons per minute
Static water level before pumping 9.9 Feet below surface
Pumping level 21.0 feet below surface after 1 1/2 hours pumping
Drawdown 10.1 Feet Specific Capacity .20 Gals. per min. per ft. of drawdown
How pumped sub How measured 5 gal/pul
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
- Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Monitoring AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG _____ Are samples available? Yes
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Eastern Drilling Co
14. DATA OBTAINED BY Charles Kanner Date _____

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302858

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

COORD: 31.63 426
PERMIT NO. 3128016-1
APPLICATION NO. _____
COUNTY _____

FOR MONITORING PURPOSES ONLY WELL RECORD

1. OWNER Maple Shade ADDRESS Box 368
Owner's Well No. 3 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Cornell
3. DATE COMPLETED 2-16-88 DRILLER Charles Kramer
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 24 Feet
5. CASING: Type PVC Diameter 4 inches Length 8 Feet
6. SCREEN: Type PVC Size of Opening 020 Diameter 4 inches Length 23 Feet
- Range in Depth { Top 8 Feet
Bottom 23 Feet
- Geologic Formation _____
- Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 2-16-88 Yield 2.0 Gallons per minute
Static water level before pumping 7.0 Feet below surface
Pumping level 20 feet below surface after 1/2 hours pumping
Drawdown 13.0 Feet Specific Capacity .15 Gals. per min. per ft. of drawdown
How pumped sub How measured 5 gal pal
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR Monitoring AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ OF.
12. LOG _____ Are samples available? Yes
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Eastern Drilling Co
14. DATA OBTAINED BY Charles Kramer Date 2-16-88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302859

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 31-30709-4
APPLICATION NO. _____
COUNTY BURLINGTON
COORD. 31.03.4.26

WELL SEALED 12/26/89 WELL RECORD

1. OWNER STERN'S ADDRESS Bergen Mall, RT 4, Paramus, NJ 07652
Owner's Well No. MW-1 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Moorestown Mall, Rt. 38 & Lenola Rd. Moorestown, NJ 08037
3. DATE COMPLETED 3-30-89 DRILLER Hardin-Huber, Inc.
4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 20 Feet
5. CASING: Type PVC Diameter 4 inches Length 10 Feet
6. SCREEN: Type PVC Size of Opening .020 Diameter 4 inches Length 10 Feet
Range in Depth { Top 10 Feet
Bottom 20 Feet Geologic Formation _____
Tail Piece: Diameter _____ inches Length _____ Feet
7. WELL FLOWS NATURALLY n/a Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
RECORD OF TEST: Date n/a Yield _____ Gallons per minute
Static water level before pumping _____ Feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped _____ How measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT: n/a
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR MONITORING ONLY AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG SEE BACK Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Geraghty & Miller
14. DATA OBTAINED BY Hardin-Huber, Inc. Date 6-10-89

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302860

MONITORING WELL RECORD

Well Permit No. 31. 43041
Atlas Sheet Coordinates 31. 03. 426 ☐OWNER IDENTIFICATION - Owner WHITE SELL ENTERPRISES
Address P.O. BOX 5005
City MT. LAUREL State NJ Zip Code 08054-5005WELL LOCATION - If not the same as owner please give address. Owner's Well No. MN-7
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 2 Block No. 214G
Address 540 GLEN AVETYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 12.9.93
Regulatory Program Requiring Well UST Case I.D. # 92-2124

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 18' ft.
Well finished to 18' ft.Borehole diameter:
Top 10 in.
Bottom 10 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface _____ ft.Was steel protective casing installed?
☒ Yes ☐ NoStatic water level after drilling 9'2" ft.Water level was measured using STEEL TAPEWell was developed for 2 hours at 1 gpmMethod of development SHALLOW WELL JETWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Method H.S.A.Drilling Fluid NONE Type of Rig DIECKMACH D50Name of Driller BOB HUNNELHealth and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None (D) C B AN.J. License No. J-1420

Name of Drilling Company _____

LIPPINCOTT ENGINEERING

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Robert HunnelDate 12.17.93

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302861

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0'	3'	4"	SCM 40 REG. THREADED
Outer Casing (Not Protective Casing)	-	-	-	-
Screen (Note slot size)	3	18	4"	.010 SCM 40 REG. THREADED
Tail Piece	-	-	-	-
Gravel Pack	2.5'	18	10"	# 4 MARIÉ SAND
Annular Seal/Grout	0	2.5	10"	CEMENT BENTONITE
Method of Grouting	PRESSURE, TREMBLE PIPE			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

0'-8' DARK BROWN SAND AND GRAVEL
F/C8'-18' - DRAKES BROWN SAND F/M
TRAE SILT
E-O-B = 18'

JAN 11 1950

Division of Conservation
and Economic Development
Water Policy & Supply
Topographic Survey

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD

31-3-4



Permit No. 31-60

Application No. 684

County Burlington

1. OWNER Maple Shade Water Dept. ADDRESS Maple Shade, New Jersey
Owner's Well No. Layne Well No. 1 SURFACE ELEVATION 20' Feet
(Above mean sea level)

2. LOCATION Maple Shade, New Jersey

3. DATE COMPLETED 11-9-49 DRILLER Layne-New York Co., Inc.

4. DIAMETER: Top 10 Inches Bottom 10 Inches TOTAL DEPTH 126 Feet

5. CASING: Type Steel Diameter 10 Inches Length 91 Feet

6. SCREEN: Type Everdur Size of Opening 10 Inches Diameter 10 Inches Length 30 Feet

Range in Depth { Top 91 Feet Geologic Formation Sand & Gravel
Bottom 121 Feet

Tail piece: Diameter 10 Inches Length 5 Feet

7. WELL FLOWS NATURALLY -- Gallons per Minute at -- Feet above surface

Water rises to -- Feet above surface

8. RECORD OF TEST: Date 11-9-49 Yield 530 Gallons per minute

Static water level before pumping 16 Feet below surface

Pumping level 46 feet below surface after 8 hours pumping

Drawdown 30 Feet Specific Capacity 17.6 Gals. per min. per ft. of drawdown

How Pumped Elec. Power How measured Orifice

Observed effect on nearby wells --

9. PERMANENT PUMPING EQUIPMENT:

Type Turbine Capacity 530 Gallons per minute

How Driven Elec. Horse Power 15 R.P.M. 1800

Depth of pump in well 121 Feet Depth of foot piece in well 126 Feet

10. USED FOR Public Supply
AMOUNT { Average -- Gallons Daily
Maximum -- Gallons Daily

11. QUALITY OF WATER Sample: Yes -- No --

Taste -- Odor -- Color -- Temperature -- °F

12. LOG Over Are samples available? --

(Give details on back of sheet or on separate sheet)

13. SOURCE OF DATA Layne-New York Company, Inc.

14. DATA OBTAINED BY Layne-New York Company, Inc. DATE 1/10/50

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302862

31.3.4.2.7

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD

Permit No. 31-2301
Application No. _____
County _____

1. OWNER Township of Maple Shade ADDRESS Maple Shade, N. J.
Owner's Well No. 5 SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Maple Shade Water Works, Maple Shade N. J.
3. DATE COMPLETED Dec. 7th, 1955 DRILLER Artesian Well Drilling Co.
4. DIAMETER: Top 20X12 Inches Bottom 20X12 Inches TOTAL DEPTH 282 Feet
5. CASING: Type Steel double cased Diameter 20X12 Inches Length 214 Feet
6. SCREEN: Type Cook WW Size of Everdur Opening .050 & .060 Diameter 11 1/2 Inches Length 61 Feet
Range in Depth { Top 211 Feet Geologic Formation Ramitan
Bottom 272 Feet
Tail piece. Diameter 10 Inches Length 10 Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date Dec 7th 1955 Yield 1020 Gallons per minute
Static water level before pumping 19 Feet below surface
Pumping level 61 feet below surface after 48 hours pumping
Drawdown 42 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped Air compressor How measured Weir
Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Capacity _____ Gallons per minute
How Driven _____ Horse Power _____ R.P.M. _____
Depth of pump in well _____ Feet Depth of Foot piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR _____ AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
- QUALITY OF WATER Good Sample: Yes X No. _____
Taste Irony Odor None Color Clear Temperature 58 °F
LOG See other side Are samples available? No
(Give details on back of sheet or on separate sheet)
- SOURCE OF DATA Artesian well Drilling Co.
11. DATA OBTAINED BY Thomas C Magee Jr. DATE Dec. 8th 1955

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302863

ESTABLISHED 1912

THOMAS C. MAGEE, JR.

TELEPHONES
238-4880 OR 238-2388
AREA CODE 809

MEMBER
PA. WATER WELL CONT. ASSOC., INC.
N. J. WATER WELL CONT. ASSOC.
NAT. WATER WELL ASSOC., INC.

M. Paul Austin Engineering Assoc. Inc.
Rancocas Road,
Burlington, New Jersey

No. 8 WELL

Gentlemen:

As per your request please find record of the new well for the Township of Maple Shade, New Jersey.

Depth of well-----290 feet
Size of well-----20 by 12 Inch
Well contains-----210 feet of 20" pipe
 210 feet of 12" pipe

Well Screen-----Johnson Stainless Steel Wire Wound
Top 40 feet-----# 50 slot
Bot 20 feet-----# 40 slot
Tail Pipe-----,10 feet long

0'	to	8'	clay & gravel.
8'	to	73'	black marl
73'	to	101'	hard sand
101'	to	136'	sand and gravel
136'	to	170'	clay
170'	to	176'	dirty sand
176'	to	180'	sand and gravel
180'	to	202'	clay
202'	to	271'	course sand and gravel water bearing
271'	to	280'	clay

Static water level-----52 feet
Capacity-----700 G.P.M.
Pumping level-----130 feet with other well pumping

150

Very truly yours,

ARTESIAN WELL DRILLING CO.

John! Mary!

302864

Bacteriological and Chemical Analysis

AUDUBON, N.J. 08106

"Certified Testing Laboratory"

- ANALYSIS
- CONSULTING
- PURIFIERS
- CHEMICALS
- POOL SERVICE
- WASTE WATER
- FOOD ANALYSIS

31-6020 No. 8 Well

Analysis No. 67214-9

Date of collection June 14 19 72 Hour of Collection 9:30 A.M. P.M.

Company Thomas C. Magee, Jr. Address Church Rd. Phone 235-4580

Date Delivered to Laboratory June 14 1972 Time 11:00 AM Address Mt. Laurel, N. J. 08057

Sample taken from Maple Shade Well by Thomas C. Nagee, Jr. Flow (GPD) _____

Condition of sample when drawn _____

Collector's Remarks _____

Condition of Sample upon arrival at laboratory _____

Remarks _____

TEST	REQ?	PRES. ABS.	QUAN.	METH.	TECH. IN.	TEST	REQ?	PRES. ABS.	QUAN.	METH.	TECH. IN.
Al						Mercury					
Alkalinity			66.8ppm			Nickel					
Aluminum						Nitrate NO ₃			0.43ppm		
Amonia						Nitrite					
Aside						Odor					
						Oil & Grease					
						Pesticides					
Iron Dioxide			67.3ppm			pH			6.2		
Leadium						Phenols					
St. Hardness						Phos. Ortho					
O.D.						Phos. Tot.					
Nitrites			11.5ppm			Residue Tot.					
Nitrites OTA						Residue Filtr.					
Nitrites Total						Residue Non-Filtr.					
St. Hydrocarbons						Sol. Metals					
Sulfate						Sodium					
Copper						Solids					
St. Oxygen						Spec. Cond.					
St. Solids						Sulfate			23.9ppm		
Nitrites						Sulfide					
Hardness						Sulfite					
Nitrogen Sulfide						Sol. Matter					
Iron (Ferric)			9.3ppm			Turbidity					
Iron (Ferrous)						T.D.S.			92.3ppm		
Lead						Total Solids					
Lead						Zinc					
Lead			0.01ppm								
Nitrate (Asbestos)			0.07ppm			Carbonate					
Nitrate (Sulfate)						Noncarbonate					

BACTERIOLOGICAL

[illegible]

302866

31-03-427

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCESPermit No. 31-12925
Application No. _____

WELL RECORD

OWNER MAPLE SHADE TOWNSHIP ADDRESS MAIN ST. - MAPLE SHADE, N.J. 08052Owner's Well No. 11 SURFACE ELEVATION _____ Feet
(above mean sea level)LOCATION LOT #10, BLOCK 82A MAPLE SHADEDATE COMPLETED 2-17-78 DRILLER LAYNE - NEW YORK CO. INC.DIAMETER: top 18 inches Bottom 12 inches TOTAL DEPTH 450' FeetCASING: Type BLACK STEEL - WELDED Diameter 18 inches Length 384 FeetSCREEN: Type STAINLESS STEEL W.W. 304 Size of Opening .050 Diameter 12 inches Length 61 FeetRange in Depth Top 389' Feet Bottom 450 Feet Geologic Formation RARITANTail piece: Diameter 12 inches Length 0' Feet

WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface

Water rises to _____ Feet above surface

RECORD OF TEST: Date 2-17-78 Yield 1370 Gallons per minuteStatic water level before pumping 52' Feet below surfacePumping level 108' feet below surface after 48 hours pumpingDrawdown 56 Feet Specific Capacity 24.46 Gals. per min. per ft. of drawdownHow Pumped VERTICAL TURBINE PUMP How measured ORIFICEObserved effect on nearby wells NONE

PERMANENT PUMPING EQUIPMENT:

Type VERTICAL TURBINE DEEP WELL Mfrs. Name LAYNE & BOWLER - MEMPHIS, TENNCapacity 1250 G.P.M. How Driven ELECT MOTOR H.P. 75 R.P.M. 1800Depth of Pump in well 163'-11" Feet Depth of Footpiece in well 168'-11" FeetDepth of Air Line in well 160' Feet Type of Meter on Pump Flow Size 8 inchesUSED FOR PUBLIC SUPPLY AMOUNT Average _____ Gallons Daily
Maximum _____ Gallons DailyQUALITY OF WATER GOOD Sample: Yes _____ No _____Taste NONE Odor NONE Color NONE Temp. _____ OF
LOG Are samples available?

(Give details on back of sheet or separate feet. If electric log as made, please furnish copy.)

SOURCE OF DATA LAYNE NEW YORK CO., INC 1200 W. ELIZ AVE. LINDEN, N.J. 07036DATA OBTAINED BY R. [signature] Date 5-10-78

(Note: Use either side of this sheet for additions. Information such as log of materials penetrated analysis of the water, sketch map, sketch of specific casing.

31-12,925

31-02-427

LOG OF WELL

0'-2'- TOP SOIL
2'-18'- TOUGH GREY CLAY
18'-65'- SANDY GRAY CLAY, GREEN MORAL, SOME GRAVEL
65'-132'- MEDIUM TO COARSE WHITE SAND, STKS OF CLAY + GRAVEL
132'-155'- SOFT WHITE CLAY - STKS OF RED
155'-166'- SOFT WHITE SANDY CLAY
166'-178'- FINE SAND + GRAVEL, STKS OF CLAY
178'-201'- FINE SAND, GRAVEL, SOFT WHITE CLAY
201'-224'- FINE TO COARSE SAND + GRAVEL, HARD PAN
224'-247'- FINE TO COARSE SAND + GRAVEL
247'-270'- FINE TO COARSE SAND + GRAVEL, STKS OF WHITE CLAY
270'-293'- FINE TO COARSE SAND + GRAVEL, CLAY STREAKS
293'-315'- FINE, COARSE WHITE SAND, GRAVEL STREAKS
315'-337'- FINE TO MEDIUM SAND STREAKS OF GREY + WHITE CLAY
337'-357'- FINE SAND WITH CLAY STREAKS, HARD STREAKS
357'-379'- FINE TO MEDIUM HARD PACKED SAND

302867

ORIGINAL GROUND

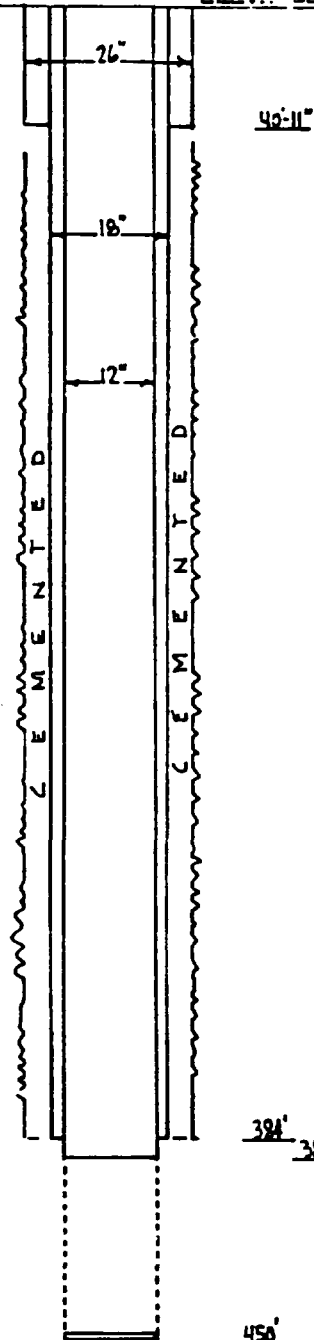
LEVEL

ELEV.: GL.

MATERIAL

31-12,925
3/103-427

TO SOIL	2'
100% GREY CLAY	18'
SANDY GREY CLAY GREEN MORAL SOME GRAVEL	65'
MEDIUM TO COARSE WHITE SAND STREAKS OF CLAY AND GRAVEL	132'
SOFT WHITE CLAY STREAKS OF RED	155'
SOFT WHITE SANDY CL.	166'
FINE SAND & GR. STRS OF CL.	178'
FINE SAND, GRAVEL SOFT WHITE CLAY	201'
FINE TO COAR. SAND AND GRAVEL - HARD PACK	224'
FINE TO COARSE SAND AND GRAVEL	247'
FINE TO COARSE SAND AND GRAVEL STREAKS OF WHITE CL.	270'
FINE TO COARSE SAND AND GRAVEL CLAY STREAKS	293'
FINE COARSE WHITE SAND, GRAVEL STRKS	315'
FINE TO MEDIUM SAND STREAKS OF GREY AND WHITE CLAY	337'
FINE SAND CLAY STREAKS - HARD STRKS	357'
FINE TO MEDIUM HARD PACKED SAND	379'
FINE TO COARSE SAND AND GRAVEL	402'
HEAVY GRAVEL	424'
FINE TO COARSE SAND LARGE GRAVEL	440'
FINE TO COAR. SAND LARGE GRAVEL - WITH CLAY	450'

STEEL & STAINLESS
STEEL PLATES WELDED

PIPE: 41' OF 26" DIAM X .375" WALL BLACK STEEL PIPE WELDED
389' OF 18" DIAM X .375" WALL BLACK STEEL PIPE WELDED
389' OF 12" DIAM X .375" WALL BLACK STEEL PIPE WELDED

SCREEN: 61'-3" OF 12" DIAM. COOK-304 STAINLESS STEEL WIRE WRAP
SLOT # 50

PLUG: 3/4" STEEL + .188" STAINLESS STEEL PLATES WELDED

GRAVEL: 35 TON OF 3-W

SEAL: CEMENT GROUT OUTSIDE OF 18" CASING TO 389'-GL.

PUMP

SIZE 12" NUMBER 86282
STAGES 3 TYPE TLE
SETTING 163'-11" S.F. COLUMN 8" X 10" CPLD.
TUBING 2 1/2" SHAFTING 1 1/2"
BOWLS CAST IRON ENAMELLED IMPELLERS BRONZE
IMP. SHAFT 410 STAINLESS SUCTION 5" OF 10" Ø
STRAINER NONE PRESS. B.P.
HEAD TF-818 AIR LINE 160' BP.

MOTOR

MAKE U.S. TYPE RU
VOLTS 230/460 CYCLE 60
PHASE 3 AMP. 176/88
H. P. 75 RPM 1800
FRAME 365-TP NON REV. YES
MODEL VHS SERIAL NO. R-2113370-S
UPPER BRG. 7220H LOWER BRG. 6211-J

GEAR DRIVE

MFG. MODEL
RATIO SERIAL NO.
HVV. THRUST NON-REV.

ENGINE

MFG. MODEL
RPM CONTINUOUS H. P.
FUEL SERIAL NO.

WELL

STARTED 1-6-78 CLEAR DEPTH
FIRST TEST 2-15-78 METHOD STD-1 REV. ROTARY
FINAL TEST GUAR. CAP.
ACCEPTED GUAR. PRESS.
B. P. ELEV. FORMATION
DIST. TO G.W. 290' DRILLER DREBES, THOMPSON

DATE	2-15-78				
STATIC LEV.	52'				
PRODUCTION	1370 GPM				
PUMP. LEVEL	166'				
WATER TEMP.					

LOCATION SKETCH

LAYNE-NEW YORK CO., INC. - LINDEN, N. J.
WATER SUPPLY CONTRACTORS
TOWNSHIP OF MAPLE SHADE, NEW JERSEY

DRAWN BY NM
LAYNE WELL #

STATE # 31-12925
CUSTOMER WELL # 11

302868

WELL RECORD

Well Permit No. 31 35497
Atlas Sheet Coordinates 31 03 429 ☐

OWNER IDENTIFICATION - Owner SONRISE HOMES
Address 4060 N. DELSEA DR.
City NEWFIELD State NJ Zip Code 08344

WELL LOCATION - If not the same owner please give address. Owner's Well No. -
Address Blue Bell Rd.
County Gloucester Municipality MONROE TWP Lot No. 4 Block No. 3403

WELL USE Withdrawal Status In Use

WATER USE Domestic Average 500 gals. daily Maximum 600 gals. daily

WELL CONSTRUCTION Date well completed 1 / 30 / 91
BOREHOLE DIMENSIONS Depths: Total 60 ft. Finished 60 ft.
Diameter: Top 6 in. Bottom 6 in.
Land Surface Elevation at well - ft. Elevation was determined using -
Casing Height (stick-up) above land surface - ft.

	DEPTH TO TOP (FT.)	LENGTH (FT.)	DIAMETER (IN.)	TYPE AND MATERIAL Screens: Note Slot Size(s)
Casing 1		<u>55'</u>	<u>2"</u>	<u>Galvanized Steel</u>
Casing 2				
Casing 3				
Screen 1	<u>60'</u>	<u>5'</u>	<u>2"</u>	<u>Stainless Steel</u>
Screen 2				
Tail Piece				
Gravel Pack				
Grout	<u>55'</u>	<u>55'</u>		<u>Cement & Bentonite</u>
Grouting Method	<u>Pressure grouted from top of well screen up to surface</u>			

WELL FLOWS NATURALLY - gals. per min. at - ft. above the land surface.
Water rises to - ft. above the land surface.

RECORD OF TEST Test Date 1 / 30 / 91
Static water-level before pumping 13 ft. below land surface. Water level 15 ft. below land surface after 1 hrs. of pumping.
Water level was measured using Plum bob Drawdown 2 ft.
Discharge rate measured using 5 gal bucket Discharge Rate 10 gals. per min.
Well was pumped using blown out by air Specific Capacity 5 gals. per min. per ft. of drawdown
Observed effects on nearby wells No
Water Quality (taste, odor, color, etc.) Good

PERMANENT PUMPING EQUIPMENT Installed by Emile Gaburo Pump Type Jet pump
Mfrs. Name Sta-Rite Model ANC
CAPACITY: Pump delivers 7 GPM at 30-50 PSI pressure.
POWER: 1/2 HP at 3450 RPM Power Source Electric
DEPTHS: Pump - ft. Footpiece - ft. Airline - ft.
FLOW METER: Model Pressure gauge installed on - in. diameter pipe.

CONTRACTOR - Name of Drilling Contractor EMILE GABURO
Address 988 N. Mill Rd.
City Vineland State NJ Zip Code 08360
Name of Driller Emile Gaburo License No. 908

Signature of Contractor Emile Gaburo Date 4 / 5 / 91

COPIES: White - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302869

WELL RECORD

Well Permit No.

31-35497
31.03.429

Driller: Please use the space below for the log description. Note water bearing zones or geological formation.

Are samples available? ☒ Yes ☐ No

Drilling Method Augered

Type of Rig Auger

Aquifer/Geo. Fm. Kirkwood-Cohansey/ Sand & Clay

LOG

0-5' Clay & Sand, 5-15' Sand & Stone,
15' Static Water level, 15-30' Yellow
Sand, 30-35' Some Clay, 35-60' Yellow
Water Sand, 60' Clay

Potable water @ 60'

DEP USE ONLY

Storet Hydrogeo Code _____

USGS Hydrogeo Code _____

Depth to Bedrock _____ ft.

Bedrock Lith. Code _____

Bedrock Fm. Code _____

Completed by _____

Date ____ / ____ / ____

Thick.

Lith.

Fm.

GWPI No. _____

NJPDES No. _____

Latitude _____ ° _____ ' _____ "

Longitude _____ ° _____ ' _____ "

Lat-Long Accuracy ☐ 1" ☐ 5" ☐ 10" ☐ 20"

USGS Quadrangle _____

Drainage Basin Code _____

County/Municipality Code _____

OTHER FILES:

☐ Lithologic Log

☐ Samples Available

☐ Aquifer Test

☐ Water Level Data

☐ Geophysical Logs

☐ Water Chemistry

☐ Pollution Case

Checked by _____

Date ____ / ____ / ____

302870

**DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD**

31.03.4 31
Permit No. 31-2558

Application No. _____

County _____

1. OWNER C.R. Young, ADDRESS Moorestown, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Crooked Land Moorestown, N.J.
3. DATE COMPLETED 3/8/56 DRILLER Charles Mollitor,
4. DIAMETER: Top 4 Inches Bottom _____ Inches TOTAL DEPTH 187 Feet
5. CASING: Type Blk Steel Diameter 4 Inches Length Random Feet
6. SCREEN: Type Johnson Opening 30 slot Diameter 4 Inches Length 6 Feet
Size of
Range in Depth { Top _____ Feet Geologic Formation _____
Bottom _____ Feet
Tail piece. Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 3/8/56 Yield 60 Gallons per minute
Static water level before pumping _____ 90 Feet below surface
Pumping level 80 feet below surface after 2 hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped Air How measured 5 gal. bkt. stop watch
Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
Type Submersible Capacity 10 Gallons per minute
How Driven Electric Horse Power 1/2 R.P.M. 3450
Depth of pump in well 105 Feet Depth of Foot piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR Domestic AMOUNT { Average 300 Gallons Daily
Maximum 500 Gallons Daily
11. QUALITY OF WATER Good Sample: Yes _____ No. _____
Taste _____ Odor _____ Color _____ Temperature _____ °F
12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet)
13. SOURCE OF DATA Log Book of John Libucki
14. DATA OBTAINED BY Aronson Bell DATE 3/15/56

313432

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD

Permit No. 31-1644

Application No. _____

County _____

1. OWNER Dominick J. Clangel ADDRESS Maple Shade, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Wilson St. & Route 73, Maple Shade, N.J.
3. DATE COMPLETED 9/22/54 DRILLER Charles Mollitor,
4. DIAMETER: Top 6 Inches Bottom _____ Inches TOTAL DEPTH 216 Feet
5. CASING: Type Black Steel Diameter 4 Inches Length Random Feet
6. SCREEN: Type Johnson Size of Opening 30 Slott Diameter 6 Inches Length 10' 3" Feet
Range in Depth { Top _____ Feet Geologic Formation _____
Bottom _____ Feet
Tail piece. Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 9/22/54 Yield 50 Gallons per minute
Static water level before pumping _____ 50 Feet below surface
Pumping level 58 feet below surface after 2 hours pumping
Drawdown 8 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped Air How measured 5 gal. bkt. Stop Watch
Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
Type Other Capacity _____ Gallons per minute
How Driven _____ Horse Power _____ R.P.M. _____
Depth of pump in well _____ Feet Depth of Foot piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR Domestic AMOUNT { Average 1000 Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER Good Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temperature _____ °F
12. LOG Log Book of Gene Weik Are samples available? _____
(Give details on back of sheet or on separate sheet)
- SOURCE OF DATA Log Book of Gene Weik
- DATA OBTAINED BY Aronson Bell DATE Oct. 18, 1954

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302872



MONITORING WELL RECORD

Well Permit No. 31 - 38013
Atlas Sheet Coordinates 31 : 03 : 433 ☐

OWNER IDENTIFICATION - Owner WILTSKILL ENTERPRISES
Address P O BOX 5005
City MT. LAUREL State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW - 6
County _____ Municipality MOORESTOWN TWP Lot No. 2 Block No. 2143
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 11 / 15 / 91
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 22 ft.

Well finished to 22 ft.

Borehole diameter:
Top 10 in.
Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	6"	7	4	PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	7	22	4	PVC .020 Slot
Tail Piece				
Gravel Pack	5	22	10	#2 Morie Well Gravel
Annular Seal/Grout	6"	5	10	3/8" Pellets/Neat Cement
Method of Grouting	Tremie Pipe Pressure Grout			

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling 12'9" ft.

Water level was measured using Tape

Well was developed for 1 hours at 1/2 gpm

Method of development centrifugal

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity No gpm

Pump type: No

Drilling Method Auger

Drilling Fluid No Type of Rig D-50

Name of Driller Robert Hummel

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1420

Name of Drilling Company LIPPINCOTT ENGINEERING

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Robert T. Hummel

Date 12-2-91

LIPPINCOTT ENGINEERING ASSOCIATES

One Pavilion Avenue Riverside, New Jersey 08075

Permit No. 31-38013
Coordinate: 31 03 433

PROJECT NO. 6890.A5/A9

SHEET 2 OF 2

DATE November 15, 1991

SURFACE ELEV. Grade

PROJECT Tyco Industries

CLIENT Ranocas Environmental Laboratories

LOCATION Moorestown, New Jersey
WFS/cmb

LOG OF BORING NUMBER MW - 6

DEPTH	SAMPLE NO.	TYPE *	SAMPLE DEPTH (ft)	BLOW COUNT (blows per 6 inches)	CLASSIFICATION OF MATERIALS	MOISTURE CONTENT
					(based on samples recovered plus observation of material returned between samples)	(% by wgt.)
	S-1	A	0/	2-6-8-10	3" TOPSOIL over red brown medium-fine SAND, trace silt.	
			2			
	S-2	A	2/	6-6-6-6	Red brown medium-coarse SAND, trace fine gravel, trace silt.	
			4			
5	S-3	A	4/	8-6-6-6	Brown medium-fine SAND, trace clayey silt.	
			6			
	S-4	A	6/	6-4-5-5	Orange brown coarse-fine SAND, trace silt.	
			8			
	S-5	A	8/	6-6-6-6	Brown medium-fine SAND, trace clayey silt.	
10			10			
	S-6	A	13/	5-4-4-6	Red brown coarse-medium SAND, trace silt.	
15			15			
20	S-7	A	20/	23-15-19-10	Yellow brown fine-medium SAND and coarse-fine GRAVEL, trace silt.	
			22			
					EOB 22'	
25						

GROUNDWATER DATA

*

DEPTH: 12'9"
TIME: EOB
DATE: November 15, 1991

- A. Standard Penetration Test (ASTM-U 1586)
- B. Standard Thin-walled 3" Tube (ASTM-D 1587)
- C. Core Drilling

Driller

P. H. H. H.

Helper

M. Shepherd

Equipment

D-50

302874



MONITORING WELL RECORD

Well Permit No. 31 - 38014
Atlas Sheet Coordinates 31 : 03 : 433

OWNER IDENTIFICATION - Owner WHITESHELL ENTERPRISES
Address P O BOX 5005
City MT. LAUREL State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW - 5
County _____ Municipality MOORESTOWN TWP Lot No. 2 Block No. 214G
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 11 / 14 / 91
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 23 ft.

Well finished to 23 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling 12.5 ft.

Water level was measured using Tape

Well was developed for 1 hours at 1/2 gpm

Method of development centrifugal pump

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity No gpm

Pump type: No

Drilling Method Auger

Drilling Fluid No Type of Rig D-50

Name of Driller Robert Hummel

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1420

Name of Drilling Company LIPPINCOTT ENGINEERING

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	6"	8	4	PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	8	23	4	PVC .020 Slot
Tail Piece				
Gravel Pack	6	23	10	#2 Morie Well Gravel
Annular Seal/Grout	6"	6	10	3/8" Pellets/Neat Cement
Method of Grouting	Tremie Pipe Pressure Grout			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

SEE ATTACHED
LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature R. Hummel

Date 12-4-91

LIPPINCOTT ENGINEERING ASSOCIATES

One Pavilion Avenue Riverside, New Jersey 08075

Permit No. 31-38014
Coordinate: 31 03 433

PROJECT NO. 6890.A5/A9

SHEET 1 OF 2

DATE November 14, 1991

SURFACE ELEV. Grade

PROJECT Tyco Industries

CLIENT Rancocas Environmental Laboratories

LOCATION Moorestown, New Jersey
WFS/cmb

LOG OF BORING NUMBER MW - 5

DEPTH (ft)	SAMPLE NO.	TYPE *	SAMPLE DEPTH (ft)	BLOW COUNT (blows per 6 inches)	CLASSIFICATION OF MATERIALS	MOISTURE CONTENT
					(based on samples recovered plus observation of material returned between samples)	(% by wgt.)
	S-1	A	0/	2-5-6-6	3" TOPSOIL over red brown fine-medium SAND, trace silt.	
			2			
	S-2	A	2/	2-2-2-2	Red brown fine-medium SAND, little clayey silt.	
			4			
5	S-3	A	4/	4-4-5-6	Orange brown medium-fine SAND, trace silt.	
			6			
	S-4	A	6/	5-6-8-10	SAME.	
			8			
	S-5	A	8/	7-8-10-10	Dark brown fine SAND, little silt.	
10			10			
	S-6	A	13/	3-3-5-6	Orange brown fine-coarse SAND, trace silt.	
15			15			
20	S-6	A	21/	4-5-5-4	Red brown CLAY & SILT, little fine sand, trace fine gravel over dark grey SILTY CLAY.	
			23			
					EOB 23'	
25						

GROUNDWATER DATA

*

- A. Standard Penetration Test (ASTM-D 1586)
- B. Standard Thin-walled 3" Tube (ASTM-D 1587)
- C. Core Drilling

DEPTH: 12'5"
TIME: EOB
DATE: November 14, 1991

Driller

B. Himmel

Helmer

M. Shepherd

Equipment

D-50

302876

**DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
Division of Water Policy & Supply
WELL RECORD**

31.03.4 34
Permit No. 31-1615
Application No. _____
County _____

1. OWNER John Lorenz Leona, ADDRESS Moorestown, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION New Albany, Rd.
3. DATE COMPLETED 9/18/54 DRILLER Charles Mollitor
4. DIAMETER: Top 4 Inches Bottom _____ Inches TOTAL DEPTH 65 Feet
5. CASING: Type 812 Steel Diameter _____ Inches Length Random Feet
Size of _____
6. SCREEN: Type Johnson Opening 20 Slott Diameter 4 Inches Length 8 Feet
Range in Depth { Top _____ Feet Geologic Formation _____
Bottom _____ Feet
Tail piece. Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 9/18.54 Yield 15 Gallons per minute
Static water level before pumping 24 Feet below surface
Pumping level 45 feet below surface after 2 hours pumping
Drawdown 21 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped Air How measured 5 gal bkt Stop Watch
Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
Type Other Capacity _____ Gallons per minute
How Driven _____ Horse Power _____ R.P.M. _____
Depth of pump in well _____ Feet Depth of Foot piece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____
10. USED FOR Domestic AMOUNT { Average 300 Gallons Daily
Maximum 500 Gallons Daily
11. QUALITY OF WATER Good Sample: Yes _____ No. _____
Taste _____ Odor _____ Color _____ Temperature _____ °F
12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet)
13. SOURCE OF DATA Log Book Of John Rougeau
14. DATA OBTAINED BY Aronson Bell DATE 10/25/54

(Note: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302877

MONITORING WELL RECORD

Well Permit No. 31 38821
Atlas Sheet Coordinates 31 03 437 ☐

OWNER IDENTIFICATION - Owner GARRISON, BEN
Address 229 E. CAMDEN AVENUE
City MOORESTOWN State NJ Zip Code 08057

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County Burlington Municipality MOORESTOWN TWP Lot No. 94 Block No. 215
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 4/6/92
Regulatory Program Requiring Well UST Case I.D. # 890-0223
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 21 ft.

Well finished to 19 ft.

Borehole diameter:

Top 11 in.

Bottom 11 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 10.0 ft.

Water level was measured using split spoon

Well was developed for 1 hours at 2 gpm

Method of development pumping

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HSA

Drilling Fluid none Type of Rig Mobile 8-57

Name of Driller Wellington Reeve

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) (None) D C B A

N.J. License No. J-1455

Name of Drilling Company JAMES C. ANDERSON ASSOC. INC.

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	4	4	Sch. 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	4	19	4	.010 PVC
Tail Piece				
Gravel Pack	2	21		#1 Morie
Annular Seal/Grout	0	2		Cement-bentonite
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

Depth	Description
5'-7'	Fill soil, fine to medium sand
10'-12'	Brown clayey fine to medium sand
15'-18'	Black silt and clay
18'-21'	Black clay

certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Wellington Reeve

Date

5-11-92

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302878

MONITORING WELL RECORD

Well Permit No. 31 38822Atlas Sheet Coordinates 31 03 437 ☐

OWNER IDENTIFICATION - Owner GARRISON, DEN
Address 229 E. CAMDEN AVENUE
City MOORESTOWN State NJ Zip Code 08057

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-2
County Burlington Municipality MOORESTOWN TWP Lot No. 9A Block No. 213
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 4/6/92
Regulatory Program Requiring Well MONITORING Case I.D. # D90-0223
UST Tele. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____

WELL CONSTRUCTION

Total depth drilled 21 ft.Well finished to 19 ft.

Borehole diameter:

Top 11 in.Bottom 11 in.Well was finished: ☐ above grade☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 10.0 ft.Water level was measured using split spoonWell was developed for 1 hours at 2 gpmMethod of development: pumpingWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Method HSADrilling Fluid none Type of Rig mobile B-57Name of Driller Wellington ReeveHealth and Safety Plan submitted? ☐ Yes ☒ NoLevel of Protection used on site (circle one) (None) D C B AN.J. License No. J-1455Name of Drilling Company JAMES C. ANDERSON ASSOC. INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	4	4	Sch. 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	4	19	4	.010 PVC
Tail Piece				
Gravel Pack	2	21		#1 Monie
Annular Seal/Grout	0	2		Cement-bentonite
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

Depth	Description
5'-7'	Brown fine to medium sand with some clayey sand.
10'-12'	Black woodbury clay with some sand
15'-21'	Same as above

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Wellington Reeve

Date

5-11-92

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302879

MONITORING WELL RECORD

Well Permit No. 31 38823
Atlas Sheet Coordinates 31 03 437 ☐

OWNER IDENTIFICATION - Owner GARRISON, DON
Address 229 E. CAMDEN AVENUE
City MOORESTOWN State NJ Zip Code 08057

WELL LOCATION - If not the same as owner please give address. Owner's Well No. mw-3
County Burlington Municipality MOORESTOWN TWP Lot No. 9A Block No. 215
Address 0

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 4/6/92
Regulatory Program Requiring Well LST Case I.D. # C90-0223

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 25 ft.

Well finished to 23 ft.

Borehole diameter:

Top 11 in.

Bottom 11 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 10.6 ft.

Water level was measured using split spoon

Well was developed for 1 hours at 2 gpm

Method of development pumping

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HSA

Drilling Fluid none Type of Rig mobile B-57

Name of Driller Wellington Reeve

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) (None) D C B A

N.J. License No. J-1455

JAMES C. ANDERSON ASSOC., INC.

Name of Drilling Company _____

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	7	4	sch. 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	7	23	4	.010 PVC
Tail Piece				
Gravel Pack	5	25		#1 Mone
Annular Seal/Grout	0	5		cement-bentonite
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

Depth	Description
5'-7'	Fill, fine to medium sand and gravel
10'-12'	Brown clayey fine to medium sand with some coarse sand.
15'-17'	Black silty clay
17'-25'	SAME

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Wellington Reeve

Date

5-11-92

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302880

MONITORING WELL RECORD

Well Permit No. 31 38824
Atlas Sheet Coordinates 31 03 437 ☐

OWNER IDENTIFICATION - Owner GARRISON, DON
Address 229 E. CAMDEN AVENUE
City MOORESTOWN State NJ Zip Code 08057

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-4
County Burlington Municipality MOORESTOWN TWP Lot No. PA Block No. 215
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 4/6/92
Regulatory Program Requiring Well UST Case I.D. # E90-0223
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 22 ft.

Well finished to 20 ft.

Borehole diameter:

Top 11 in.

Bottom 11 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed? ☒ Yes ☐ No

Static water level after drilling 8.0 ft.

Water level was measured using split spoon

Well was developed for 1 hours at 2 gpm

Method of development pumping

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HSA

Drilling Fluid none Type of Rig mobile B-57

Name of Driller Wellington Reeve

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. J-1455

Name of Drilling Company JAMES C. ANDERSON ASSOC. INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	4	4	Sch. 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	4	20	4	.010 PVC
Tail Piece				
Gravel Pack	2	22		#1 Moine
Annular Seal/Grout	0	2		cement-bentonite
Method of Grouting	Tremie			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

Depth	Description
5'-7'	Fine to coarse sand and gravel
10'-12'	Brown clay, some silt and gravel
15'-17'	Black woodbury clay and fine silty sand
20'-22'	same as above

certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Wellington Reeve Date 5-11-92

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.

302881

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

31.03.439

PERMIT NO. 31-22232

APPLICATION NO. _____

COUNTY Burl

WELL RECORD

1. OWNER Don Smith ADDRESS 711 Beacon St. Moorestown

Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)

2. LOCATION Lot 7A Block 2164 Moorestown

3. DATE COMPLETED 10/30/84 DRILLER Robbins Water Service

4. DIAMETER: Top 4 inches Bottom 4 1/2 inches TOTAL DEPTH 140 Feet

5. CASING: Type PVC Diameter 4 inches Length 140 Feet

6. SCREEN: Type PVC Size of Opening 016 Diameter 4 inches Length 10 Feet

Range in Depth { Top 130 Feet
Bottom 140 Feet } Geologic Formation varian

Tail Piece: Diameter _____ inches Length _____ Feet

7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface

Water rises to _____ Feet above surface

8. RECORD OF TEST: Date 10/30/84 Yield 40 Gallons per minute

Static water level before pumping 30 Feet below surface

Pumping level _____ feet below surface after _____ hours pumping

Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown

How pumped down How measured _____

Observed effect on nearby wells _____

9. PERMANENT PUMPING EQUIPMENT:

Type sub Mfrs. Name myers

Capacity _____ G.P.M. How Driven _____ H.P. 1 1/2 R.P.M. _____

Depth of Pump in well 130 Feet Depth of Footpiece in well _____ Feet

Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches

10. USED FOR irrigation AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily }

11. QUALITY OF WATER _____ Sample: Yes _____ No _____

Taste _____ Odor _____ Color _____ Temp. _____ °F.

LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)

13. SOURCE OF DATA _____

14. DATA OBTAINED BY Robbins Water Serv. Date 10/30/84

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302882

MONITORING WELL RECORD

Well Permit No. 31 40663
Atlas Sheet Coordinates 31 03 455OWNER IDENTIFICATION - Owner AMOROSI, MIKE
Address 103 W. WOODLAWN AVE.
City NAPLES SHADE State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-1
County Burlington Municipality NAPLES SHADE TWP Lot No. 9A Block No. 173C
Address _____TYPE OF WELL (as per Well Permit Category) MONITORING Date well completed 01/05/93
Regulatory Program Requiring Well UST Case I.D. # 92-11-2-0942-06

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 22' ft.Well finished to 0' ft.

Borehole diameter:

Top 12" in.Bottom 12" in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ NoStatic water level after drilling 8.3" ft.Water level was measured using TAPEWell was developed for 4 hours at 125 gpmMethod of development Sub-pumpWas permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AugerDrilling Fluid _____ Type of Rig Feeling F2Name of Driller K L FrenchHealth and Safety Plan submitted? ☐ Yes ☒ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. J1510Name of Drilling Company CLEAN VENTURE INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0'	12'		Sch 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	12'	22'		Sch 40 PVC
Tail Piece				
Gravel Pack	10'	22'		#2 MORRIS Pellets
Annular Seal/Grout	8'	10'		Neat cement
Method of Grouting	TREMIE			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-12' Lt Br F/M SAND
Brick cement fill

12'-15 Br to grey F/M
SAND some silty clay

15'-22' DARK grey SILTY clay
to FINE SAND

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

K L French

Date

01/09/93

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

31.03.4 62

Permit No. 31-3141

Application No. _____

County _____

WELL RECORD

1. OWNER Foley A.A. Foley ADDRESS Moorestown, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION Moorestown, N.J.
3. DATE COMPLETED 9/26/57 DRILLER Charles Mollitor
4. DIAMETER: top 4 Inches Bottom _____ Inches TOTAL DEPTH 155 Feet
5. CASING: Type Slk Steel Diameter 4 Inches Length Random Feet
6. SCREEN: Type Johnson Size of Opening 20 slot Diameter 4 Inches Length 52 Feet
Range { Top _____ Feet Geologic Formation _____
Bottom _____ Feet
- Tail piece. Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 9/26/57 Yield 40 Gallons per minute
Static water level before pumping 65 Feet below surface
Pumping level 75 feet below surface after 2 hours pumping
Drawdown 10 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped Air How measured 5 gal. bkt. Stop watch
Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
Type Submersible Mfrs. Name Duro
Capacity 20 G.P.M. How Driven Elec H.P. 1 R.P.M. 3450
Depth of Pump in well 80 Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Depth of Meter on Pump _____
10. USED FOR Domestic AMOUNT Average 300 Gallons Daily
Maximum 400 Gallons Daily
11. QUALITY OF WATER Good Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F
12. LOG _____ Are samples available _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA John Rougeau
14. DATA OBTAINED BY Aranson Bell Date 10/30/57

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302884

MONITORING WELL RECORD

Well Permit No. 31 - 38598
Atlas Sheet Coordinates 31 : 03 : 463

OWNER IDENTIFICATION - Owner MOORESTOWN TOWNSHIP
Address 601 E. 3RD ST.
City MOORESTOWN State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County _____ Municipality MOORESTOWN TWP Lot No. 1 Block No. 2900
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 3/4/92
Regulatory Program Requiring Well DST Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) FOLCHER CONTAINER SERVICE Tele. # 609-227-1634

WELL CONSTRUCTION

Total depth drilled 18.5 ft.

Well finished to 18.5 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface _____ ft.

Was steel protective casing installed?

☒ Yes ☐ No 12" MIN. HOLE

Static water level after drilling 7.0 ft.

Water level was measured using STEEL TAPE

Well was developed for 0.5 hours at 1 gpm

Method of development PUMPING / SURGE BLOCK

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method HOLLOW STEM AUGER

Drilling Fluid _____ Type of Rig ROTARY

Name of Driller LEONARD J. RUSCIANI

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. JD-1572

Name of Drilling Company PROFESSIONAL SERVICE LTD. INC.

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	3.5	4"	SCH 40 PVC
Outer Casing (Not Protective Casing)	—	—	—	
Screen (Note slot size)	3.5	18.5	4"	4" SCH. 40 PVC .01" SL
Tail Piece	—	—	—	
Gravel Pack	3.0	18.0	10	#1 SAND
Annular Seal/Grout	2/0	3/2	10	PORTLAND CEMENT PELLETS
Method of Grouting	TREMIE CEMENT 6 GAL/SACK			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

0'-6' FILL SAND CRUSHED BRICK
6'-18'5" GREY SILTY CLAY

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Leonard J. Rusciani Date 3-6-92

MONITORING WELL RECORD

Well Permit No. 31 38599
Atlas Sheet Coordinates 31 : 03 : 463

OWNER IDENTIFICATION - Owner MOORESTOWN TOWNSHIP
Address 601 E. 3RD ST.
City MOORESTOWN State NJ Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW #2
County _____ Municipality MOORESTOWN TWP Lot No. 1 Block No. 2900
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 3, 3, 92
Regulatory Program Requiring Well MONITORING Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) FULCHER CONTAINER SERVICE Tele. # 609-227-4634

WELL CONSTRUCTION

Total depth drilled 18.0 ft.

Well finished to 18.0 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2.0 ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 7.0 ft.

Water level was measured using STEEL TAPE

Well was developed for 1.5 hours at 1.0 gpm

Method of development PUMPING / SURGE BLOCK

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method HOLLOW STEM AUGER

Drilling Fluid _____ Type of Rig ROTARY

Name of Driller LEONARD J. RUSCIANI

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. JD-1572

Name of Drilling Company PROFESSIONAL SERVICE INC. INC

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	3	4"	SCH. 40 PVC
Outer Casing (Not Protective Casing)	—	—	—	
Screen (Note slot size)	3	18	4"	SCH. 40 PVC 40"x —
Tail Piece	—	—	—	
Gravel Pack	2.5	18	10	#1 SAND
Annular Seal/Grout	1.5	2.5	10	BENTONITE PELLETS CEMENT GROUT
Method of Grouting	TREMIE CEM. 6 GAL/SACK			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0'-3' SILTY SAND
3'-18.0' SILTY CLAY

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Leonard J. Rusciani

Date

3-6-92

MONITORING WELL RECORD

Well Permit No. 31 38600
Atlas Sheet Coordinates 31 : 03 : 463 ☐

OWNER IDENTIFICATION - Owner MOORESTOWN TOWNSHIP
Address 601 E. 3RD ST.
City MOORESTOWN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No.
County Municipality MOORESTOWN TWP Lot No. 1 Block No. 2900
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 3/3/92
Regulatory Program Requiring Well OST Case I.D. #

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Tele. #

WELL CONSTRUCTION

Total depth drilled 19.5 ft.

Well finished to 19.5 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface ft.

Was steel protective casing installed?

☒ Yes ☐ No 12" MINIMUM

Static water level after drilling 9.0 ft.

Water level was measured using STEEL TAPE

Well was developed for 0.5 hours at 2.0 gpm

Method of development PUMPING / SURGE BLOCK

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity gpm

Pump type:

Drilling Method HOLLOW STEM AUGER

Drilling Fluid Type of Rig ROTARY

Name of Driller LEONARD J. RUSCIANI

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. JD 1572

Name of Drilling Company PROFESSIONAL SERVICE IND. INC

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	4.5	4	SCH 40 PUC
Outer Casing (Not Protective Casing)	-	-	-	
Screen (Note slot size)	4.5	19.5	4	SCH 40 PUC .01400T
Tail Piece	-	-	-	
Gravel Pack	3.5	19.5	10	#1 SAND
Annular Seal/Grout	2.5 0	3.5 2.5	10	CEMENT GROUT PELLETS
Method of Grouting	TRENIE CEMENT 6 GAL/SACK			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0'-7' SILTY SAND

7'-19.5' GREY SILTY CLAY

certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Leonard J. Rusciani Date 3-6-92

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

31.3.46517
Permit No. 31-3295
Application No. _____
County _____

WELL RECORD

1. OWNER Louis Osinski, ADDRESS Moorestown, N.J.
Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION S. Lencla Road, Moorestown, N.J.
3. DATE COMPLETED 3/25/59 DRILLER Charles Mollitor, Inc.
4. DIAMETER: top 4 Inches Bottom _____ Inches TOTAL DEPTH 130 Feet
5. CASING: Type Blk Steel Diameter 4 Inches Length Random Feet
6. SCREEN: Type _____ Size of Opening _____ Diameter _____ Inches Length _____ Feet
Range { Top _____ Feet Geologic Formation _____
Bottom _____ Feet
- Tail piece. Diameter _____ Inches Length _____ Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 3/25 Yield 15 Gallons per minute
Static water level before pumping 65 Feet below surface
Pumping level 75 feet below surface after 2 hours pumping
Drawdown 10 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How Pumped Air How measured 5 gal. bkt Stop Watch
Observed effect on nearby wells None
9. PERMANENT PUMPING EQUIPMENT:
Type Other Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Depth of Meter on Pump _____
10. USED FOR Domestic AMOUNT Average 300 Gallons Daily
Maximum 500 Gallons Daily
11. QUALITY OF WATER Good Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F
12. LOG _____ Are samples available _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA Log Book of John Rougeau
14. DATA OBTAINED BY Aronson Bell Date 5/20/59

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302888

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

Coord: 3103465

PERMIT NO. 3123929

APPLICATION NO. _____

COUNTY Burlington

WELL RECORD

1. OWNER TEXACO INC. ADDRESS 301 FRIENDSHIP RD.

Owner's Well No. _____ SURFACE ELEVATION _____ Feet
(Above mean sea level)

2. LOCATION Lot: 5-D Block: 189 Municipality: Moorestown Twp.

3. DATE COMPLETED 10/31/85 DRILLER South Jersey Well Drilling

4. DIAMETER: Top 4 inches Bottom 4 inches TOTAL DEPTH 240 Feet

5. CASING: Type PVC PLASTIC Diameter 4 Inches Length 230 Feet

6. SCREEN: Type PVC Size of Opening 016 Diameter 4 Inches Length 10 Feet

Range in Depth { Top 230 Feet
Bottom 10 Feet

Geologic Formation SAND & CLAY

Tail Piece: Diameter _____ Inches Length _____ Feet

7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface

Water rises to _____ Feet above surface

8. RECORD OF TEST: Date 10/31/85 Yield 18 Gallons per minute

Static water level before pumping 111 Feet below surface

Pumping level 131 feet below surface after 4 hours pumping

Drawdown 20 Feet Specific Capacity _____ Gals. per min. per ft. of drawdown

How pumped submersible How measured flow meter

Observed effect on nearby wells none

9. PERMANENT PUMPING EQUIPMENT:

Type submersible Mfrs. Name Myers

Capacity 15 G.P.M. How Driven electric H.P. 3/4 R.P.M. 3500

Depth of Pump in well 140 Feet Depth of Footpiece in well _____ Feet

Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ Inches

10. USED FOR REPLACE - COMMERCIAL AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily

11. QUALITY OF WATER GOOD Sample: Yes _____ No _____
Taste GOOD Odor GOOD Color GOOD Temp. _____ °F.

12. LOG _____ Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log used, please furnish copy.)

13. SOURCE OF DATA SOUTH JERSEY WELL DRILLING

14. DATA OBTAINED BY ROSS RESTUCCIO Date 11/17/85

1061 North First Road
Hammonton, N.J. 08037

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302889

DEPARTMENT OF CONSERVATION
AND ECONOMIC DEVELOPMENT
DIVISION OF WATER POLICY & SUPPLY

31-3-4659
Permit No. 31-4663
Application No. 201
County _____

WELL RECORD

Twp. of Moorestown

1. OWNER TOWNSHIP OF MOORESTOWN ADDRESS MOORESTOWN, N.J.
Owner's Well No. 2-B SURFACE ELEVATION _____ Feet
(Above mean sea level)
2. LOCATION KINE'S HIGHWAY MOORESTOWN (COUNTY) BURLINGTON N.J.
3. DATE COMPLETED NOV 19, 1963 DRILLER LAYNE NEW YORK CO. INC.
4. DIAMETER: top 18 inches Bottom 12 inches TOTAL DEPTH 290 Feet
5. CASING: Type STEEL Diameter 18 inches Length 243 Feet
6. SCREEN: Type STAINLESS Size of holes STEEL Opening _____ Diameter 12 inches Length 40 Feet
Range in Depth { Top 248 Feet Bottom 288 Feet Geologic Formation SAND & GRAVEL STRS OF LIGHT GREY CLAY SAND CLAY
- Tail piece: Diameter 12 inches Length 2 Feet
7. WELL FLOWS NATURALLY _____ Gallons per Minute at 0 Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date 11/18/63 Yield 805 Gallons per minute
Static water level before pumping 67' Feet below surface
Pumping level 103' feet below surface after 8 hours pumping
Drawdown 36' Feet Specific Capacity 32.2 Gals. per min. per ft. of drawdown
How Pumped ELEC. DRIVEN TURBINE How measured ORIFICE
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type TURBINE Mfrs. Name LAYNE & BOWLER, INC. MEMPHIS, TENN.
Capacity 805 G.P.M. How Driven ELECTRIC MOTOR H.P. 40 - R.P.M. 1800
Depth of Pump in well 143'8" Feet Depth of Footpiece in well 9'8" Feet
Depth of Air Line in well 153 Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR PUBLIC SUPPLY AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F
12. LOG SEE REVERSE SIDE Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy)
13. SOURCE OF DATA LAYNE NEW YORK CO. INC.
14. DATA OBTAINED BY LAYNE NEW YORK CO. INC. Date 7/1/64

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements etc.)

302890

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 3129976-8
APPLICATION NO. _____
COUNTY Burlington
COORD. 31 03 511

WELL RECORD

Sun Refining

1. OWNER Sun Refining & Marketing Co. ADDRESS Ten Penn Center/1801 Market Street, Phila
Owner's Well No. MW # 5 SURFACE ELEVATION (flush Mount) _____ Feet
(Above mean sea level)
2. LOCATION Sunoco Service Station at Inter. of Rte 73 East & Princeton Avenue, Mapleshade
3. DATE COMPLETED 12/16/88 DRILLER B & Myers Bros. Inc. - Myers
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 21 Feet
5. CASING: Type PVC Diameter 4 inches Length 1 Feet
6. SCREEN: Type PVC Size of Opening .02 Diameter 4 inches Length 20 Feet
- Range in Depth { Top 1 Feet
Bottom 21 Feet
- Geologic Formation Clay, Fill
- Tail Piece: Diameter -- inches Length -- Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date _____ Yield _____ Gallons per minute
Static water level before pumping _____ Feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped _____ How measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR MONITORING WELL AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG AS ABOVE Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Drillers Log -- Dennis Moore
14. DATA OBTAINED BY Valerie Guiseppe Date 12/16/88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302891

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 3129977-6
APPLICATION NO. _____
COUNTY Burlington
COORD. 31 03 511

WELL RECORD

1. OWNER Sun Refining & Marketing Co. ADDRESS Ten Penn Ctr. 1801 Market St., Phila
Owner's Well No. MW # 6 SURFACE ELEVATION (flush Mount) Feet
(Above mean sea level)
2. LOCATION Sunoco Service Station at the Inter. of Rte 73 East & Princeton Ave, Mapleshade
3. DATE COMPLETED 12/16/88 DRILLER B.L. Myers Bros., Inc.
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 21 Feet
5. CASING: Type PVC Diameter 4 inches Length 1 Feet
6. SCREEN: Type PVC Size of Opening .02 Diameter 4 inches Length 20 Feet
- Range in Depth { Top 1 Feet
Bottom 21 Feet
- Geologic Formation Clay Fill
- Tail Piece: Diameter -- inches Length -- Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date _____ Yield _____ Gallons per minute
Static water level before pumping _____ Feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown: _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped _____ How measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR MONITORING WELL AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG AS ABOVE Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Drillers Log -- Dennis Moore
14. DATA OBTAINED BY Valerie Guiseppe Date 12/16/88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302892

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES

PERMIT NO. 3129978-4
APPLICATION NO. _____
COUNTY Burlington
COORD. 31 03 511

WELL RECORD

1. OWNER Sun Refining & Marketing Co. ADDRESS Ten Penn Ctr. 1801 Market St., Phila.
Owner's Well No. MW # 7 SURFACE ELEVATION (flush mount) Feet
(Above mean sea level)
2. LOCATION Sunoco Service Station at the Inter. of Rte 73 East & Princeton Ave., Mapleshade
3. DATE COMPLETED 12/16/88 DRILLER B.L. Myers Bros., Inc.
4. DIAMETER: Top 8 inches Bottom 8 inches TOTAL DEPTH 21 Feet
5. CASING: Type PVC Diameter 4 inches Length 1 Feet
6. SCREEN: Type PVC Size of Opening _____ Diameter 4 inches Length 20 Feet
Range in Depth { Top 1 Feet
Bottom 21 Feet } Geologic Formation Clay, Fill
Tail Piece: Diameter -- inches Length -- Feet
7. WELL FLOWS NATURALLY _____ Gallons per minute at _____ Feet above surface
Water rises to _____ Feet above surface
8. RECORD OF TEST: Date _____ Yield _____ Gallons per minute
Static water level before pumping _____ Feet below surface
Pumping level _____ feet below surface after _____ hours pumping
Drawdown _____ Feet Specific Capacity _____ Gals. per min. per ft. of drawdown
How pumped _____ How measured _____
Observed effect on nearby wells _____
9. PERMANENT PUMPING EQUIPMENT:
Type _____ Mfrs. Name _____
Capacity _____ G.P.M. How Driven _____ H.P. _____ R.P.M. _____
Depth of Pump in well _____ Feet Depth of Footpiece in well _____ Feet
Depth of Air Line in well _____ Feet Type of Meter on Pump _____ Size _____ inches
10. USED FOR MONITORING WELL AMOUNT { Average _____ Gallons Daily
Maximum _____ Gallons Daily }
11. QUALITY OF WATER _____ Sample: Yes _____ No _____
Taste _____ Odor _____ Color _____ Temp. _____ °F.
12. LOG AS ABOVE Are samples available? _____
(Give details on back of sheet or on separate sheet. If electric log was made, please furnish copy.)
13. SOURCE OF DATA Drillers Log --- Dennis Moore
14. DATA OBTAINED BY Valerie Guiseppe Date 12/16/88

(NOTE: Use other side of this sheet for additional information such as log of materials penetrated, analysis of the water, sketch map, sketch of special casing arrangements, etc.)

302893



MONITORING WELL RECORD

Well Permit No. 31 - 38144
Atlas Sheet Coordinates 31 : 03 : 515

OWNER IDENTIFICATION - Owner BENNETT, SAMUEL & LOUISE
Address 3188 MARIA CIRCLE
City WEST PALM BEACH State FL Zip Code 33417

WELL LOCATION - If not the same as owner please give address. Owner's Well No. M.W.-1
County BURLINGTON Municipality MOORESTOWN TWP Lot No. 21 A & B Block No. 271
Address 5 EAST MAIN ST. MOORESTOWN NJ 08057

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 12/13/91
Regulatory Program Requiring Well UST Case I.D. # TMS G-01-3257
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled _____ ft.

Well finished to _____ ft.

Borehole diameter:
Top 8 in.
Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling _____ ft.

Water level was measured using _____

Well was developed for 1/2 hours at 2 gpm

Method of development BAILEY

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method H.S.A.

Drilling Fluid - Type of Rig ROTARY

Name of Driller JIM TIERNEY

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None ☒ C ☐ B ☐ A

N.J. License No. 1195

Name of Drilling Company JAMES TIERNEY

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing			<u>4</u>	
Outer Casing (Not Protective Casing)	<u>-</u>	<u>-</u>	<u>-</u>	
Screen (Note slot size)			<u>4</u>	
Tail Piece				
Gravel Pack			<u>8</u>	
Annular Seal/Grout			<u>8</u>	<u>PERMANENT</u>
Method of Grouting				

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached.)

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature _____

Date 12/19/91

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302894



MONITORING WELL RECORD

Well Permit No. 31 - 36104
Atlas Sheet Coordinates 31 : 03 : 517OWNER IDENTIFICATION - Owner GARRISON, DON
Address 229 CAMDEN AVENUE
City MOORESTOWN State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County CAMDEN Co. Municipality MOORESTOWN TWP Lot No. 9A Block No. 215
Address _____TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 3.7.91
Regulatory Program Requiring Well LST Case I.D. # 190-0223
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) H A A S Tele. # _____

WELL CONSTRUCTION

Total depth drilled 13 ft.Well finished to 13 ft.

Borehole diameter:

Top 11 in.Bottom 11 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface NA ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 6' ft.Water level was measured using STEEL TAPWell was developed for 1 hours at 10' gpmMethod of development BAILERWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity NA gpmPump type: NADrilling Method HSADrilling Fluid NA Type of Rig MOBILE B-61Name of Driller JAMES TIERNEYHealth and Safety Plan submitted? ☐ Yes ☒ NoLevel of Protection used on site (circle one) None ☒ C ☐ B ☐ AN.J. License No. JD 1195Name of Drilling Company TRINITY DRILLING COMPANY

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	13	4"	PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	3	13'	4"	020 PVC
Tail Piece	0	3	4"	PVC
Gravel Pack	2	13		#2 SAND
Annular Seal/Grout	0	2		BENTONITE/CEMENT
Method of Grouting	GRAVITY			

GEOLOGIC LOG (Copies of other geologic logs and/or
geophysical logs should be attached.)BROWN FINE
TO MEDIUM
SAND

GRAY MARL.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.Driller's Signature James TierneyDate 4-17-91

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302895



MONITORING WELL RECORD

Well Permit No. 31 - 36105
Atlas Sheet Coordinates 31 : 03 : 517

OWNER IDENTIFICATION - Owner GARRISON, DON
Address 229 CAMDEN AVENUE
City MOORESTOWN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-3
County CAMDEN Municipality MOORESTOWN TWP Lot No. 9A Block No. 215
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 3/8/91
Regulatory Program Requiring Well UST Case I.D. # CSO-0223
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) H A A S Tele. #

WELL CONSTRUCTION

Total depth drilled 35 ft.

Well finished to 35 ft.

Borehole diameter:

Top 11 in.

Bottom 11 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface NA ft.

Was steel protective casing installed? ☒ Yes ☐ No

Static water level after drilling 28' ft.

Water level was measured using STEEL TAPE

Well was developed for 1 hours at 10 gpm

Method of development BAILER

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: NA

Drilling Method HSA

Drilling Fluid NA Type of Rig MOBILE B-40L

Name of Driller JAMES TIERNEY

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None ☒ C ☐ B ☐ A

N.J. License No. JD 1195

Name of Drilling Company TRINITY DRILLING COMPANY

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	35	4"	PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	25	35	4"	020 PVC
Tail Piece	0	25	4"	PVC
Gravel Pack	24	35		#2 SAND
Annular Seal/Grout	0	24		BENTONITE/CEMENT
Method of Grouting	TREMIE			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

BROWN SILT BRICK, GRAVEL (FILL)	8'
GRAY CLAY SOME SAND	17'
GRAY MARL	35'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Jim Tierney

Date

4-17-91

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302896



MONITORING WELL RECORD

Well Permit No. 31 - 36106
Atlas Sheet Coordinates 31 : 05 : 517

OWNER IDENTIFICATION - Owner GARRISON, DON
Address 229 CAMDEN AVENUE
City MOORESTOWN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-2
County CAMDEN Municipality MOORESTOWN TWP Lot No. 9A Block No. 215
Address

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 3/7/91
Regulatory Program Requiring Well LET Case I.D. # C90-0223

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) H A A S Tele. #

WELL CONSTRUCTION

Total depth drilled 12 ft.

Well finished to 12 ft.

Borehole diameter:

Top 11 in.

Bottom 11 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing height (stick up) above land surface NA ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 6 ft.

Water level was measured using STEEL TAPE

Well was developed for 1 hours at 10 gpm

Method of development BAILOR

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity NA gpm

Pump type: NA

Drilling Method HSA

Drilling Fluid NA Type of Rig MOBILE B-51

Name of Driller JAMES TIERNEY

Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. JD 1195

Name of Drilling Company TRINITY DRILLING COMPANY

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	12	4"	PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	2	12	4"	PVC .020
Tail Piece	0	2	4"	PVC
Gravel Pack	1.5	12		#2 SAND
Annular Seal/Grout	0	1.5		BENTONITE CEMENT
Method of Grouting	GRAVITY			

GEOLOGIC LOG

(Copies of other geologic logs and/or geophysical logs should be attached.)

BROWN FINE SAND 9'

GRAY MARL 12'

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Jim Tierney

Date 4-17-91

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302897

DWR-138 M
6/89

New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEAR AVE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-4
County _____ Municipality MOORESTOWN TWP Lot No. 218, P, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 12/20/89
Regulatory Program Requiring Well BORING Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 22.0 ft.

Well finished to 22.0 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method AUGER

Drilling Fluid N/A Type of Rig 0-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C' B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>22</u>	<u>8</u>	<u>CEMENT & BENTONITE</u>
Method of Grouting	<u>TREHIE</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

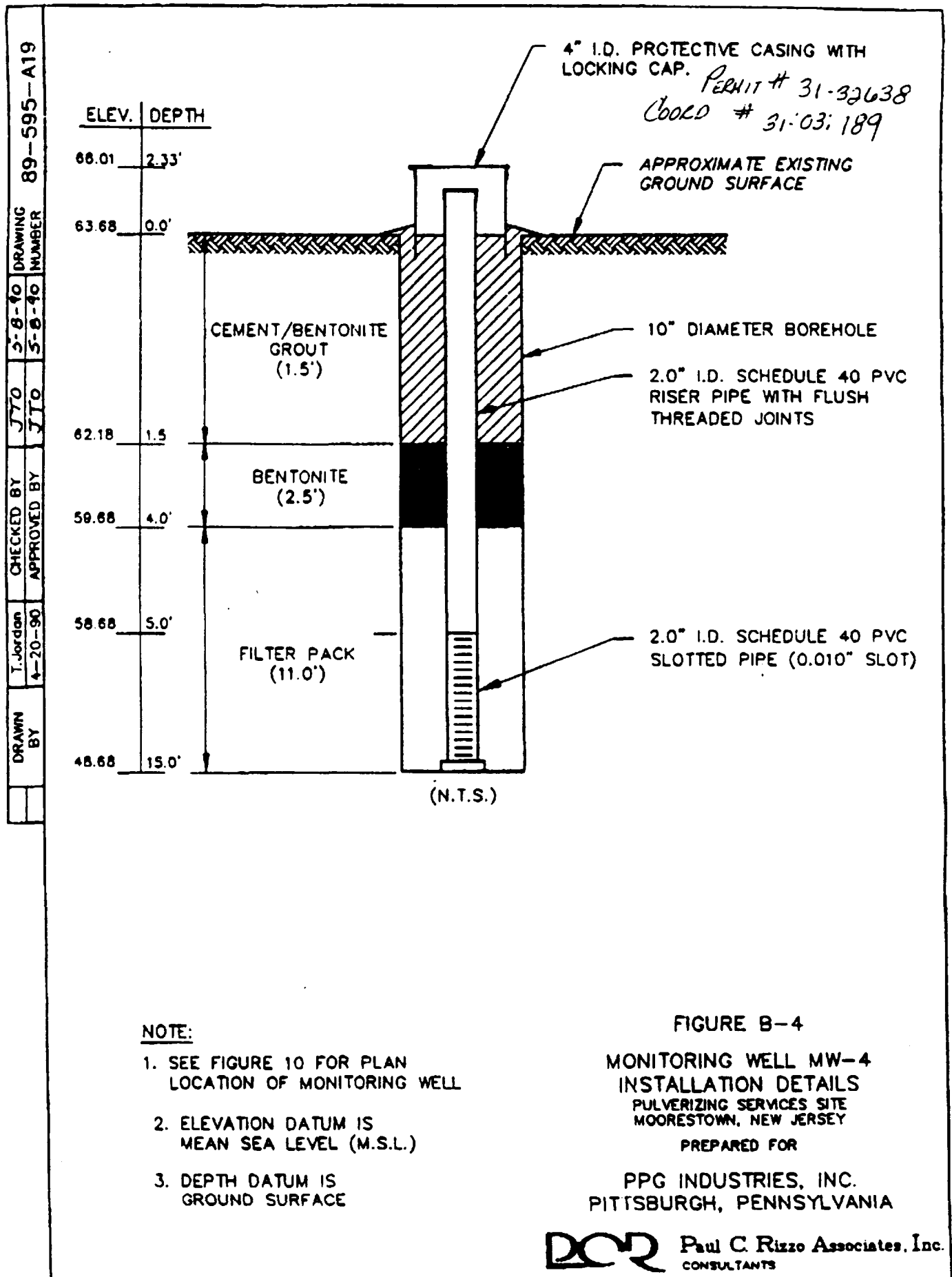
Driller's Signature Charles Hitzelberger

Date 01-20-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302898

302899





Paul C Rizzo Associates, Inc.
CONSULTANTS

VISUAL CLASSIFICATION OF SOILS

FEHIT # 31-30638
CORKO # 31:03:189

PROJECT NO. 81-595 PROJECT NAME PPS PAGE 1 OF 1
BORING NUMBER B-4 SURFACE EL. _____ DATE/TIME 12/19/87 DATE 12-19-87
COORD. (N) _____ G.W. DEPTH 1' DATE/TIME 12/19/87 DATE STARTED 12-19-87
(E) _____ DRILLING METHODS ASA / 5" DATE/TIME _____ DATE COMPLETED 12-20-87
ENG/GEO AHT

DEPTH (ft)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (ft)	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
	S-1	5-6 7-7	18	Med. Brown GRAY - MEDIUM SAND TRACE CLT. DRY			LAB SAMPLE TAKEN 12-19-87
	S-2	8-6 8-4	18	Medium brown reddish brown medium sand, dry to moist			Lab sample taken black sandy medium intermixed, 1' 4' sample taken 12-19-87
5	S-3	2-4 8-7	19	Dark red brown, fine sand very wet			Lab sample taken 12-19-87
14	S-4	3-4 3-4	15	Dark red brown, medium fine sand, very wet			Lab sample taken 12-19-87
	S-5	2-3 4-8	21	Same with trace cobbles			Lab sample taken 12-19-87
15	S-6	3-4 5-8	12	Dark red brown, medium fine sand, very wet			Lab sample taken 12-19-87
	S-7	3-4 4-4	12	Same with trace cobbles			Lab sample taken 12-19-87
20	S-8	7-5 5-4	15	Dark orange-brown, medium sand			Lab sample taken 12-19-87
	S-9	5-4 4-5	16	Medium stiff gray red clay with some sand			Lab sample taken 12-19-87
25				Very red brown sand 2055/ Stiff gray clay with trace red moist 220' Bottom of Boring = 220'			Lab sample taken 12-19-87

NOTES:

Method: Sinking Jerry derrick; Fuel helper (same)
140# hammer
Finish recording at 1100 hrs.
302900

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.

Address 4325 LARAB AVE

City NORTH CHARLESTON

State SC

Zip Code _____

WELL LOCATION - If not the same as owner please give address.

Owner's Well No. B-20

County _____

Municipality _____

Lot No. 215, F, L

Block No. 202

Address _____

TYPE OF WELL (as per Well Permit Categories) _____

Date well completed 11-6-90

Regulatory Program Requiring Well BORING

Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES

Tele. # _____

WELL CONSTRUCTION

Total depth drilled 31.5 ft.

Well finished to 31.5 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method AUGER

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES H. FELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>31.5</u>	<u>8</u>	<u>CEMENT & BENTONITE</u>
Method of Grouting	<u>TREHIE</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Charles H. Felberger

Date

07-08-90

COPIES:

White & Green - DEP

Canary - Driller

Pink - Owner

Goldenrod - Health Dept.

302901



Paul C. Rizzo Associates, Inc.
CONSULTANTS

Report # 31-38638
2000 # 3103189

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 89-595 PROJECT NAME PPG
BORING NUMBER B-20 SURFACE EL. _____ PAGE 1 OF 2
COORD. (N) _____ GWL DEPTH _____ DATE/TIME _____ DATE 1-6-90
(E) _____ DATE/TIME _____ DATE STARTED 1-6-90
DRILLING METHODS 40 154 304 ENG/CEO AHT DATE COMPLETED 1-6-90
CASING INFO: SIZE/DEPTH _____

DEPTH ($\frac{1}{2}$)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER ($\frac{1}{2}$)	RECOVERY ($\frac{1}{2}$)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
5	S-1	3-4 4-9	14	range red sand, some silt large silt.			1st sample taken Begin 150 hrs
	S-2	5-5 7-7	12	range red silt sand to large silt.			
5	S-3	4-9 11	11	range red coarse sand medium silt.			
	S-4	10-14 36	14	range orange red sand some clay large $> 1\frac{1}{2}$ & more large red sand; some to silt large coarse ($> 1\frac{1}{2}$) clay			
	S-5	27-29 30-38	10	range red gravelly sand v. wet			
	S-6	9-14 6-8	12	range red gravelly sand v. wet			1st sample taken
	S-7	11-12 14-18	12	range orange brown sand/candy gravel and silt ($\frac{1}{2}$ & < 1) wet			
5	S-8	5-17 15-18	19	range no. brown gravelly sand wet, to black sand			
5	S-9	4-7 4-8	12	range orange brown sand wet @ 18' range brown clay to 18.4' black sand wet			
	S-10	3-5 4-5	15	black gray silt sand to black gray clay			
5	S-11	7-8 7-5	15	black silt sand moist to wet			
	S-12	4-6 7-5	18	black silt sand, some clay moist			
5	S-13	4-7 8-9	21	black sandy clay to silt.			

NOTES:

Maltes drilling - Butch Hylkjaer - driller
Bill Kipler - helper

ATV drill - CME 55

16 magnetic means selected at HMC



PERMIT # 31-32638
COOL # 31103189

VISUAL CLASSIFICATION OF SOILS							
PROJECT NO. <u>29-595</u>		PROJECT NAME <u>PPG</u>					
BORING NUMBER <u>B-20</u>		SURFACE EL. _____		PAGE <u>2</u> OF <u>2</u>			
COORD. (N) _____		GWL DEPTH _____	DATE/TIME _____		DATE <u>1-6-90</u>		
(E) _____		DATE/TIME _____		DATE STARTED <u>1-6-90</u>			
DRILLING METHODS <u>4 1/4" HSA SPT</u>		ENG/GEO <u>AHI</u>		DATE COMPLETED <u>1-6-90</u>			
CASING INFO: SIZE/DEPTH _____							
DEPTH (ft)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (ft)	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
20	5-14 (C&T)	8-11 .2-4	24	Dark gray clay		2.0	
				Bottom of Boring = 31.5'			Finish 1635 hrs T
				R A			
				D			

NOTES: Mathes drilling - Butch Hitzelberger - drillers
Bill Lightner - helper
ATV Drill - CME 55
No Organic matter detected by ATII

302903

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEAR AVE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-6
County _____ Municipality MOORESTOWN TWP Lot No. 218, P, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 12/31/90
Regulatory Program Requiring Well BORING Case I.D. # _____
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 170 ft.

Well finished to 170 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling: N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method Auger

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. RI66

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>17</u>	<u>8</u>	<u>CEMENT & FENTONITE</u>
Method of Grouting	<u>TREHIE</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Charles Hitzelberger Date 01-20-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302904



Paul C. Rizzo Associates, Inc.
CONSULTANTS

PERMIT # 31-32638

COORD # 31031189

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 89-595 PROJECT NAME PPG
BORING NUMBER B-6 SURFACE EL. _____ PAGE 1 OF 1
COORD. (N) _____ GWL: DEPTH _____ DATE/TIME _____ DATE 12-21-89
(E) _____ DATE/TIME _____ DATE STARTED 12-21-89
DRILLING METHODS HSA ENG/GEO AHT DATE COMPLETED 12-21-89

DEPTH (FT)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (6")	RECOVERY (in)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Start 12-21-89 1100 hrs
	S-1	3-4 5-4	15"	loose brown silty sand with trace gravel, cobbles in 2d			known wood, mulchlike material @ 3.0' (3" of loose, tan clayey material)
	S-2	1-1 1-2	14"	yellow, material, sandy, possibly sulfur, deep green bluish			lab sample taken (duplicate and split)
5	S-3	6-17 22	15"	loose reddish-tan sand moist			
	S-4	12-17 23	14"	loose orange brown sand from medium clay at ~ 8.0', to cobbles moist			
10	S-5	2-4 5-5	17"	Same, wet			
	S-6	1-1 2		Same			lab sample taken
	S-7	9-14 12-31	13"	loose, layered-brown sand loose orange-brown silty sand, some gravel moist to wet			hard drilling at 14.5' (near refusal)
15	S-8	5-5 6-6	18"	soft black gray sandy clay moist Medium stiff gray/black clay 17.0'			Finish 1255 hrs
				Bottom of Boring = 17.0'			cement-bentonite grout to surface Finish grouting at 1316 hrs. 2 bags of cement

NOTES:

Mathes Miller - Jerry Bignall
Ridger - Rick Fisher

302905

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEAR AVE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-8
County _____ Municipality MOORESTOWN TWP Lot No. 21B-F-1 Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 12/20/89
Regulatory Program Requiring Well BORING Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIEGO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 17 ft.

Well finished to 17 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm.

Pump type: N/A

Drilling Method Auger

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>17</u>	<u>8</u>	<u>CEMENT & BENTONITE</u>
Method of Grouting	<u>TRENT</u>			

GEOLOGIC LOG (Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Charles Hitzelberger

Date

01-18-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302906



Paul C. Rizzo Associates, Inc.
CONSULTANTS

VISUAL CLASSIFICATION OF SOILS

PERMIT # 31-37638

CORO # 3103189

PROJECT NO. 89-595 PROJECT NAME PPG
BORING NUMBER B-8 SURFACE EL. _____ PAGE ____ OF ____
COORD. (N) _____ GWL: DEPTH _____ DATE/TIME _____ DATE 12-20-89
(E) _____ DATE/TIME _____ DATE STARTED 12-20-89
DRILLING METHODS HSA / SPT ENG/GEO ANT DATE COMPLETED 12-20-89

DEPTH (F)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (6")	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							12-20-89 START 1415 hrs
	S-1	6-7 4-4	17"	loose orange brown silty sand clay			first 6" frozen
	S-2	6-9 12-17	21"	medium stiff brown sandy silt with some clay in			
5	S-3	8-15 10	18"	medium stiff brown and gray clay with some light gray sand loose gray and brown sand w/ fine silt in silt			black/dk purple material in silt 2-4' cobbles at 5.5' and 6.4' black/dk purple material at 6.5' split lab sample w/ EPA
	S-4	6-9 7-7	20"	loose brown to redfish brown to silt			
10	S-5	8-6 5-4	12"	loose brown sandy (10.0' - 2 10.2') silt			lab sample taken
	S-6	2-4 3-4	20"	soft red brown orange clay with sm. sand monot 10.75			
15	S-7	5-5 4-2	15"	soft black/gray sandy clay dry Same, moist			
20				Black/gray clay			Stop 1530 hrs.
				Bottom of Boring = 170'			Grout with cement - bentonite grout to surface 3 bags of cement Finish grouting = 1600 hrs
25							

NOTES:

Mathes Driller - Tony Bignall
helper - Rich Finken

302907

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.

Address 4325 LEAR AVE

City NORTH CHARLESTON

State SC

Zip Code _____

WELL LOCATION - If not the same as owner please give address.

Owner's Well No. B-12

County _____ Municipality MOORESTOWN TWP

Lot No. 215, P. 1 Block No. 202

Address _____

TYPE OF WELL (as per Well Permit Categories) _____

Date well completed 12/19/89

Regulatory Program Requiring Well BORING

Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL A. RIZZO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 17 ft.

Well finished to 17 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade

☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method AUGER

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☐ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>17</u>	<u>8</u>	<u>CEMENT & BENTONITE</u>
Method of Grouting	<u>TRIMIE</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature

Charles Hitzelberger

Date 01-20-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302908



Paul C. Rizzo Associates, Inc.
CONSULTANTS

PERMIT # 31-32638
BOUL # 31-03-189

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 89-595 PROJECT NAME PDG PAGE 1 OF 1
BORING NUMBER B-12 SURFACE EL. _____
COORD. (N) _____ GWL DEPTH _____ DATE/TIME _____ DATE 12/9/89
(E) _____ DATE/TIME _____ DATE STARTED 12-15-89
DRILLING METHODS 4 1/2" HSA, SP T ENG/GEO WCS DATE COMPLETED 2-2-89
CASING INFO: SIZE/DEPTH _____

DEPTH (<u>ft</u>)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (<u>ft</u>)	RECOVERY (<u>%</u>)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Begin 340 hrs
1	S-1	3-4 4-2	12	0-0.5' sand 0.5-1.0' brown sandy clay to gravel 1.0-2.0' very sandy clay gravel in situ w/ gravel & sand mixed 2' vice of gray & green sand & gravel w/ sand (in situ only)			Lat sample taken
5	S-2	40-45 2-18	2	vice gravel & coarse sand and sandy clay & gravel in situ			
	S-3	25-3 4-2	3	brown med. sand w/ gravel & clay wet			
10	S-4	7-6 3-2	6	red brown clayey sand & gravel gravel to clayey sand & gravel @ 10.6, block clay with 2 sand lenses @ 11.5, block clay with 2 sand lenses @ 12.5-13.5, block clay with 2 sand lenses @ 13.5-14.5, block clay with 2 sand lenses gray block sandy clay @ 16.2, line of gravel & gray sand & gravel			Lat sample taken
15	S-5	1-1 4-4	24				
	S-6	2-3 2-4	24				
	S-7	3-3 4-4	20				
20				Bottom of Boring = 110'			Finish 1440 hrs
25							concrete bucket out to surface
30							

NOTES:

Water drilling
Batch 4 ft/lower - drilled
Risk Fisher Skiller

Drill D-50 drill No organic matter detected by HPLC

DWR-138 M
6/89

New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LAR AVE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B15
County _____ Municipality MOORESTOWN TWP Lot No. 215, P, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) BORING Date well completed 1/2/90
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZED ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 14.5 ft.

Well finished to 14.5 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method AUGER

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 10666

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>14.5</u>	<u>8</u>	<u>CEMENT & BENTONITE</u>
Method of Grouting	<u>TREMI</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations.

Driller's Signature Charles Hitzelberger

Date 07/19/90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302910

DWR-138 M
6/89

New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 : 03 : 189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEAR AVE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-17
County _____ Municipality MOORESTOWN TWP Lot No. 218, F, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) _____ Date well completed 11/3/90
Regulatory Program Requiring Well BORING Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 12 ft.

Well finished to 12 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?

☐ Yes ☒ No

Static water level after drilling N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method AUGER

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>12</u>	<u>8</u>	<u>CEMENT & PENTONITE</u>
Method of Grouting	<u>TRAFFIC</u>			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Charles Hitzelberger

Date

02-5-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302912--



Paul C. Rizzo Associates, Inc.
CONSULTANTS

PERMIT # 31-32638
COORD # 31:03:189

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 89-595 PROJECT NAME PPG
BORING NUMBER 317 SURFACE EL. _____ PAGE 1 OF 1
COORD. (N) _____ GWL: DEPTH _____ DATE/TIME _____ DATE 1-3-90
(E) _____ DATE/TIME _____ DATE STARTED 1-3-90
DRILLING METHODS 4 1/4" HSA ENG/GEO WCS DATE COMPLETED 1-3-90
CASING INFO: SIZE/DEPTH _____

DEPTH (F)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (6")	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Begin 1400 hrs
	S-1	4-2 5-6	18	tan brown silty clay to fine sand root matter & debris @ 1.3' silty brown silt/more sandy mud			lab sample taken
	S-2	6-6 7-10	17	red brown fine sand to clay w/ gravel @ 3.5' grey brown mottled fine sand some clay moist			T lab sample and lab inspection taken
5	S-3	11-14 31	22	layered grey clay + brown sand @ 6' brown silty sand wet			
	S-4	2-4 6-7	24	some @ 7.7' black sand med coarse @ 8.5' black clay (Mud) wet		1.75	
10	S-5	2-5 5-8	20	black clay wet A			lab sample taken
				Bottom of Boring = 120'			Finish 1440 hrs.
15							
20							
25							
30							

NOTES:

Mathis Drilling - Butch Hitzberger - Miller
Bill Kistner - Helper

ATV drill - CME 55
110 Hilt readings selected

302913

MONITORING WELL RECORD

Well Permit No. 31 32638
Atlas Sheet Coordinates 31 :03 :189

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEXAR AVE
City NORTH CHARLESTON State SC Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. B-18
County Municipality MOORESTOWN TWP Lot No. 218, P, E Block No. 202
Address

TYPE OF WELL (as per Well Permit Categories) BORING Date well completed 11.3.90
Regulatory Program Requiring Well Case I.D. #
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES Tele. #

WELL CONSTRUCTION

Total depth drilled 37 ft.

Well finished to 37 ft.

Borehole diameter:

Top 8 in.

Bottom 8 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?
☐ Yes ☒ No

Static water level after drilling N/A ft.

Water level was measured using N/A

Well was developed for N/A hours at N/A gpm

Method of development N/A

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method Auger

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing				
Outer Casing (Not Protective Casing)				
Screen (Note slot size)				
Tail Piece				
Gravel Pack				
Annular Seal/Grout	<u>0</u>	<u>37</u>	<u>8</u>	<u>CEMENT & BENTONITE</u>
Method of Grouting	<u>TREHIE</u>			

GEOLOGIC LOG (Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Charles Hitzelberger

Date 02-05-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302914



Paul C. Rizzo Associates, Inc.
CONSULTANTS

FEIN. T. # 31-32638
COCED # 31:03:189

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 89-595 PROJECT NAME PPG PAGE 1 OF 2
BORING NUMBER B-18 SURFACE EL. _____
COORD. (N) _____ G.W. DEPTH 4.5 DATE/TIME 1-2-90 / 1-3-90
(E) _____ DATE STARTED 1-2-90
DRILLING METHODS 4 1/4" HSA, SST ENG/GEO AHT DATE COMPLETED 1-2-90
CASING INFO: SIZE/DEPTH _____

DEPTH (FT)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (ft)	RECOVERY (in)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Begin 100 lbs
	5-1	5-2 2-3	14	Moist fine brown sand to some silt, dry to moist			1st sample taken
	5-2	5-14 21-8	12	range brown, gravelly sand to silt to silted clay			I take material at 54" 1st sample taken Stop @ 11:30 hrs Start @ 0830 on 1-3-90
5	5-3	8-7 6-8	12"	range, no bound clay to sand dry silt to sand, clay			
	5-4	17-34 27-17	20	dark orange-brown coarse sand to silt dense red-purple material, gravelly			
10	5-5	3-3 4-4	18	dark brown coarse sand dry brown sand dry brown clay @ 11:45			1st sample taken
15	5-6	3-4 8-8	20	black fine clay (Hull) moist		1.5	
	5-7	3-4 2-8	19	black gray silt		1.35	
20	5-8	4-6 8-4	19	black gray clay		1.00	
	5-9	4-5 7-7	20	black gray clay moist		1.5	
25							
	5-10	6-5 8-4	22	black gray clay moist		2.0	
30							

NOTES:

Mathias drilling Butch Hitzlergen - Miller
ATV drill - CME SS Edl Rauten Shippen

No organic material was detected by Hull



Paul C. Rizzo Associates, Inc.
CONSULTANTS

PERMIT # 31-37638

COORD # 31:03:189

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 21-595 PROJECT NAME TPG
BORING NUMBER B-18 SURFACE EL. _____ PAGE 2 OF 2
COORD. (N) _____ GWL: DEPTH 4.5 DATE/TIME 1-2-90/1800 DATE 1-3-90
(E) _____ DATE/TIME _____ DATE STARTED 1-2-90
DRILLING METHODS 4 1/4" HSA SPT ENG/GEO ART DATE COMPLETED 1-3-90
CASING INFO: SIZE/DEPTH _____

DEPTH (FT)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (S)	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
30	5-11	4-8 7-7	24	black gray clay wet		1.15	
35	5-12	7-14 21-22	22	black gray sandy clay/clayey sand			larger inclusions @ 33'
40				Bottom of Boring = 37.0'			Finish @ 1025 hrs 1-3-90
				R A D			

NOTES: Mathes drilling Butch Hitzelberger - Driller
Bill Lightner - helper
ATV drill - CME E5
1/2 organic vapors were detected by Hall

DWR-138 M
6/89

New Jersey Department of Environmental Protection
Division of Water Resources

MONITORING WELL RECORD

Well Permit No. 31 - 32529
Atlas Sheet Coordinates 31 : 03 : 197

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEUR AVENUE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1
County _____ Municipality MOORESTOWN TWP Lot No. 218, F.L. Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/7/90
Regulatory Program Requiring Well _____ Case I.D. # _____
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 24.5 ft.

Well finished to 19.5 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2.36 ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 4 ft.

Water level was measured using TAPE

Well was developed for _____ hours at _____ gpm

Method of development CENTRIFUGAL

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HOLLOW STEEL AUGER

Drilling Fluid N/A Type of Rig 0.50

Name of Driller CHARLES HILZBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1046

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	9.5	2	Pvc
Outer Casing (Not Protective Casing)	—	—	—	—
Screen (Note slot size)	9.5	19.5	2	Pvc. SCH. 40 .010 slot
Tail Piece	—	—	—	—
Gravel Pack	9.5	20	10	FILTER SAND
Annular Seal/Grout	0	7.5	10	BENTONITE & CEMENT
Method of Grouting	20	24.5		TRENTIE

GEOLOGIC LOG (Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Charles Hilzberger

Date

02-09-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302917



Paul C. Rizzo Associates, Inc.
CONSULTANTS

PERMIT # 31-32529

VISUAL CLASSIFICATION OF SOILS

COORDINATE + 31.03.197

PROJECT NO. 89-595 PROJECT NAME PG
BORING NUMBER 821 SURFACE EL. _____
COORD. (N) _____ G.W. DEPTH _____ DATE/TIME _____
(E) _____ DATE/TIME _____
DRILLING METHODS 4 1/4" ID HSA, SPT ENG/CEO AWI DATE COMPLETED 1-7-90
CASING INFO: SIZE/DEPTH _____

DEPTH (ft)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (ft)	RECOVERY (in)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Begin 0820 hr
	5-1	5-5 5-5	18	range brown silty sand & clay + silt			Bottom started material # 35
	5-2	7-12 4-18	21	range brown coarse sand & clay + gravel			
5	5-3	5-7 12-15	19	range brown (red) coarse sand & 58% yellow sandy mott. (silt/clay) @ 6' must be brown sand			
	5-4	3-3 5-7	14	range brown & yellow material @ 8' brown to tan clay and sand (92%) massive clay, brown sand, in silt brown coarse sand			
10	5-5	5-5 2-3	6	range brown silty fine sand, wet			
15	5-6	2-1 1-2	16	range brown silty fine sand, wet			
	5-7	1-1 1-4	1	range brown silty fine sand, wet			
20	5-8	4-5 9-9	15	20-20.3 brown mud sand wet @ 20.3 black clayey sand			sample not taken of 17.5-19.5. hole coarse dotted sand trying to correct alignment
25	5-9	3-2 3-5	22	black grey clay			Finish 1000 hr
30				Bottom of Boring = 24.5			MVI installed See Well Installation details

NOTES:

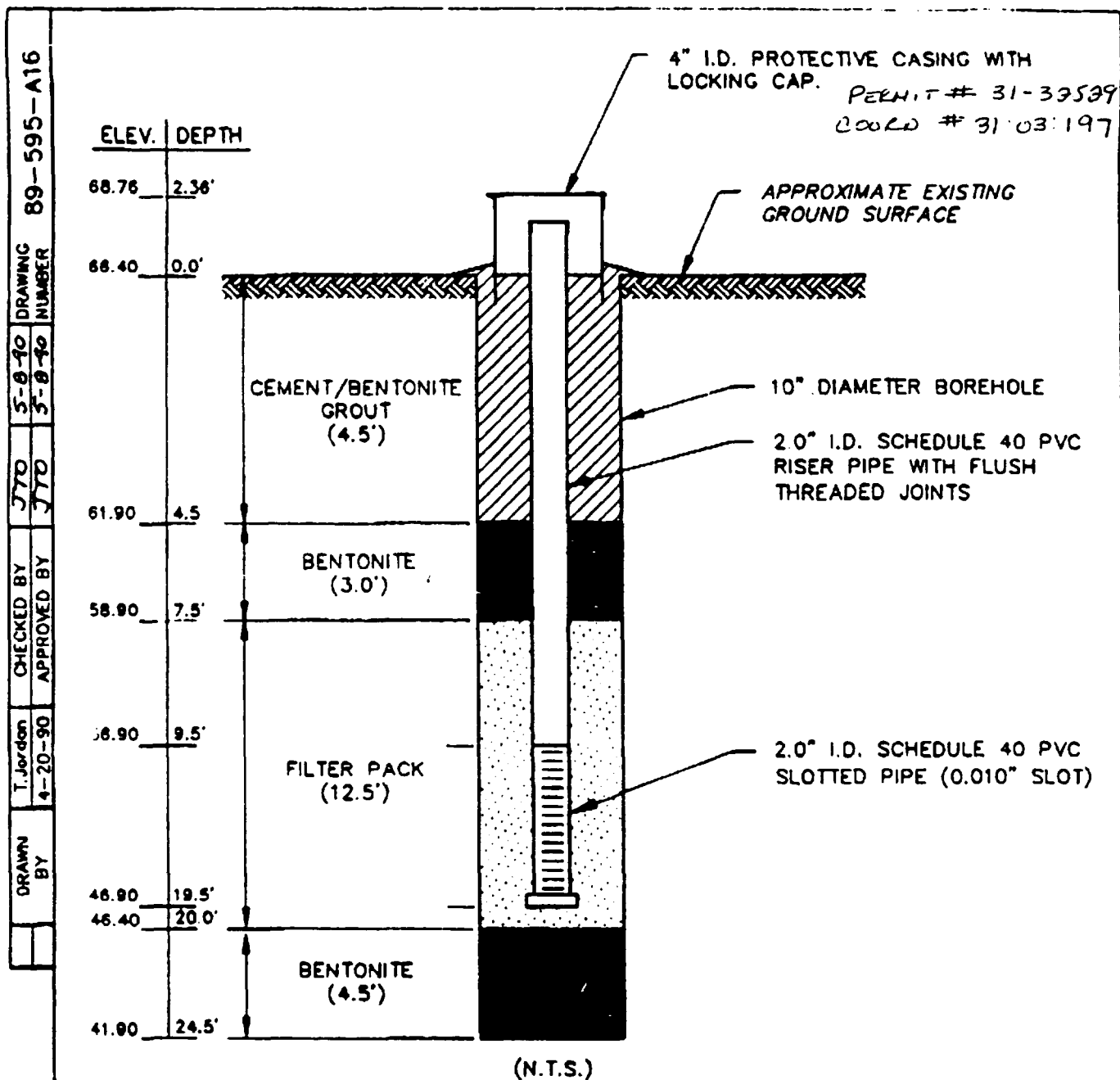
Machine drilling

Buckley Hightberger - driller

Bill Kuhlman - helper

ATV drill - cone SS

No organic vapors detected by HNU



NOTE:

1. SEE FIGURE 10 FOR PLAN LOCATION OF MONITORING WELL
2. ELEVATION DATUM IS MEAN SEA LEVEL (M.S.L.)
3. DEPTH DATUM IS GROUND SURFACE

FIGURE B-1

**MONITORING WELL MW-1
INSTALLATION DETAILS
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY
PREPARED FOR**

**PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA**



**Paul C. Rizzo Associates, Inc.
CONSULTANTS**

302919

MONITORING WELL RECORD

Well Permit No. 31 - 32530
Atlas Sheet Coordinates 31 : 03 : 197

OWNER IDENTIFICATION - Owner POLYMERIZING SERVICES, INC.
Address 4325 LEUR AVENUE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. Hw-2
County _____ Municipality HOORSTOWN TWP Lot No. 21R, F, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/17/90
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL RIZZO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 18.5 ft.

Well finished to 18.0 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2.43 ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 21.3 ft.

Water level was measured using TAPE

Well was developed for _____ hours at _____ gpm

Method of development CENTRIFUGAL

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HOLLOW STEM AUGER

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	13	2	PRC
Outer Casing (Not Protective Casing)	—	—	—	
Screen (No. & slot size)	13	18	2	PRC SCH. 40 10 SLOT
Tail Piece	—	—	—	
Gravel Pack	11	18	10	FILTER SAND
Annular Seal/Grout	0	11	10	BENTONITE & CEMENT
Method of Grouting	20 - 24.5 TRENCH			

GEOLOGIC LOG

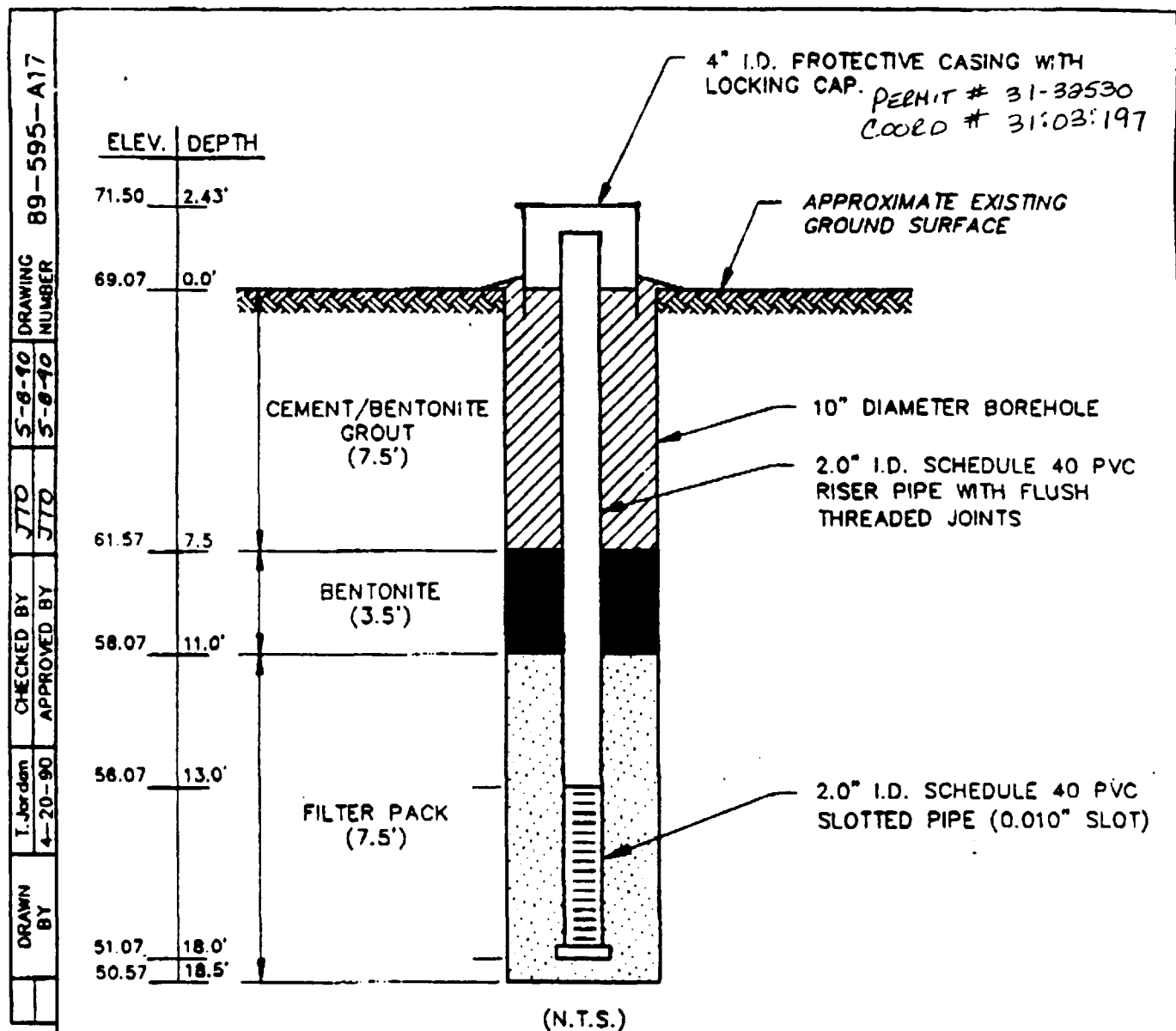
(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Charles Hitzelberger Date 02-08-90

302921

**NOTE:**

1. SEE FIGURE 10 FOR PLAN LOCATION OF MONITORING WELL
2. ELEVATION DATUM IS MEAN SEA LEVEL (M.S.L.)
3. DEPTH DATUM IS GROUND SURFACE

FIGURE B-2

**MONITORING WELL MW-2
INSTALLATION DETAILS**
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

PREPARED FOR

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



Paul C. Rizzo Associates, Inc.
CONSULTANTS



Paul C. Rizzo Associates, Inc.
CONSULTANTS

VISUAL CLASSIFICATION OF SOILS

PERMIT # 31-38530
00020 # 31-03-197

PROJECT NO. 89-515 PROJECT NAME TPG PAGE 1 OF 1
BORING NUMBER 222 SURFACE EL. _____ DATE 1-7-90
COORD. (N) _____ G.W. DEPTH _____ DATE STARTED 1-7-90
(E) _____ DATE COMPLETED 1-7-90
DRILLING METHODS 4 1/2" HSA, SPS ENG/GEO AHI
CASING INFO: SIZE/DEPTH _____

DEPTH (ft)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (6')	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Begin 1500 hrs
	S-1	4-4	17	brown sandy silt mud			T
		7-8		tan brown silt			
	S-2	5-8		2.5-3.0 tan brown silt			
		10-14	21	orange brown coarse sand silt, moist			
5	S-3	6-7	18	orange coarse sand to silt			T
		7-4		dry to moist			
	S-4	2-20	12	orange coarse sand & clay			
		22-28		large coarse sand & clay			
10	S-5	10-10	11	orange red coarse silt to silt			oil-like when on spoon
		12-18		to gravel wet small rounded cobbles			
	S-6	18-17	17	12.5-12.75 orange silt sand			
		20-21		olive gray silt sand to clay wet			
15	S-7	6-9	19	orange brown sand, olive gray			Finish 1545 hrs
		17-18		sand to clay wet			
	S-8	2-4	18	11.5-11.7 orange brown silt sand			
		8-10		12.7-8.5 black gray clay sand			
20				2.18.5 black gray silt			
				Bottom of Boring = 19.5'			
25							
30							

NOTES:

Mathis drilling Batch Hitzelberger - driller
Bill Taylor - helper

4TV drill - CME 55

During drilling HNTL detected gas to 5 ppm

During well installation HNTL detected gas up to 10 ppm

F-180

302922

MONITORING WELL RECORD

Well Permit No. 31 - 32531
Atlas Sheet Coordinates 31 : 03 : 197

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEUR AVENUE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. HW-3
County _____ Municipality MOORESTOWN TWP Lot No. 218, P, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 11/5/90
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES, INC. Tele. # _____

WELL CONSTRUCTION

Total depth drilled 24.5 ft.

Well finished to 20.0 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2.52 ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 4 ft.

Water level was measured using TAPE

Well was developed for _____ hours at _____ gpm

Method of development CENTRIFUGAL

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HOLLOW-STEM AUGERS

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HOFFELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 10166

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	7.5	2	Pvc
Outer Casing (Not Protective Casing)	—	—	—	
Screen (Note slot size)	7.5	20.0	2	Pvc SCH. 40 .010 slot 2003407
Tail Piece	—	—	—	Aluminum
Gravel Pack	7.5	20	10	FILTER SAND
Annular Seal/Grout	0. 20	7.5 24.5	10	CEMENTITE 5 CEMENT
Method of Grouting	TREMIE			

GEOLOGIC LOG (Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Charles Hoffelberger

Date

2-18-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302923



Paul C. Rizzo Associates, Inc.
CONSULTANTS

VISUAL CLASSIFICATION OF SOILS

Report # 31-39531
C0000 # 31:03:197

PROJECT NO. 84-595 PROJECT NAME TRG PAGE 1 OF 1
BORING NUMBER B1 SURFACE EL. _____ DATE/TIME 1-5-90
COORD. (N) _____ G.W. DEPTH _____ DATE/TIME 1-5-90
(E) _____ DATE/TIME _____ DATE/TIME _____
DRILLING METHODS 14" HSA SPT ENG/Geo AHL DATE COMPLETED 1-5-90
CASING INFO: SIZE/DEPTH _____

DEPTH (ft)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (6")	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Begin 0350 hr
	S-1	4-14 14-5	19	3-3.5' sand with gravel 12-3' fine sand and gravel fine brown sand & silt wet orange sand & gravel wet			Let sample taken 104 sample from 5-2' remains of 5-3' mixed w/ 5-4 and FILL remaining
	S-2	6-10 14-10	20				
5	S-3	14-17 21	17	red orange sand & gravel fills to 100% silt/clay			
	S-4	7-14 20	12	red orange sand & gravel wet			
	S-5	3-4 3-5	20	coarse red orange sand & gravel			
10							let sample taken
	S-6	5-6 6-8	15	coarse red orange sand & gravel wet red orange sand & gravel to 110'			
	S-7	12-14 16-6	7	orange fine red gravel and sand large (1/2" to 1") cobbles & wet			
15							
	S-8	4-3 5-5	16	orange red clayey sand 15-15.2' red brown clay (15.2-15.8) wet @ 16' orange red sand			
	S-9	1-1 2-1	18	orange red sand & gravel wet			Finish 130 hr MWS installed See well installation sheet for details
20							
	S-10	4-7 8-8	22	orange red clay 20-20.4' wet black gray clay 20.4-20.8' @ 20.8' black sand to 21.8' wet			
	S-11	3-4 4-4	24	black sand red coarse wet fine gray sand clay interval			
25							
				Bottom of Boring = 24.5'			
30							

NOTES:

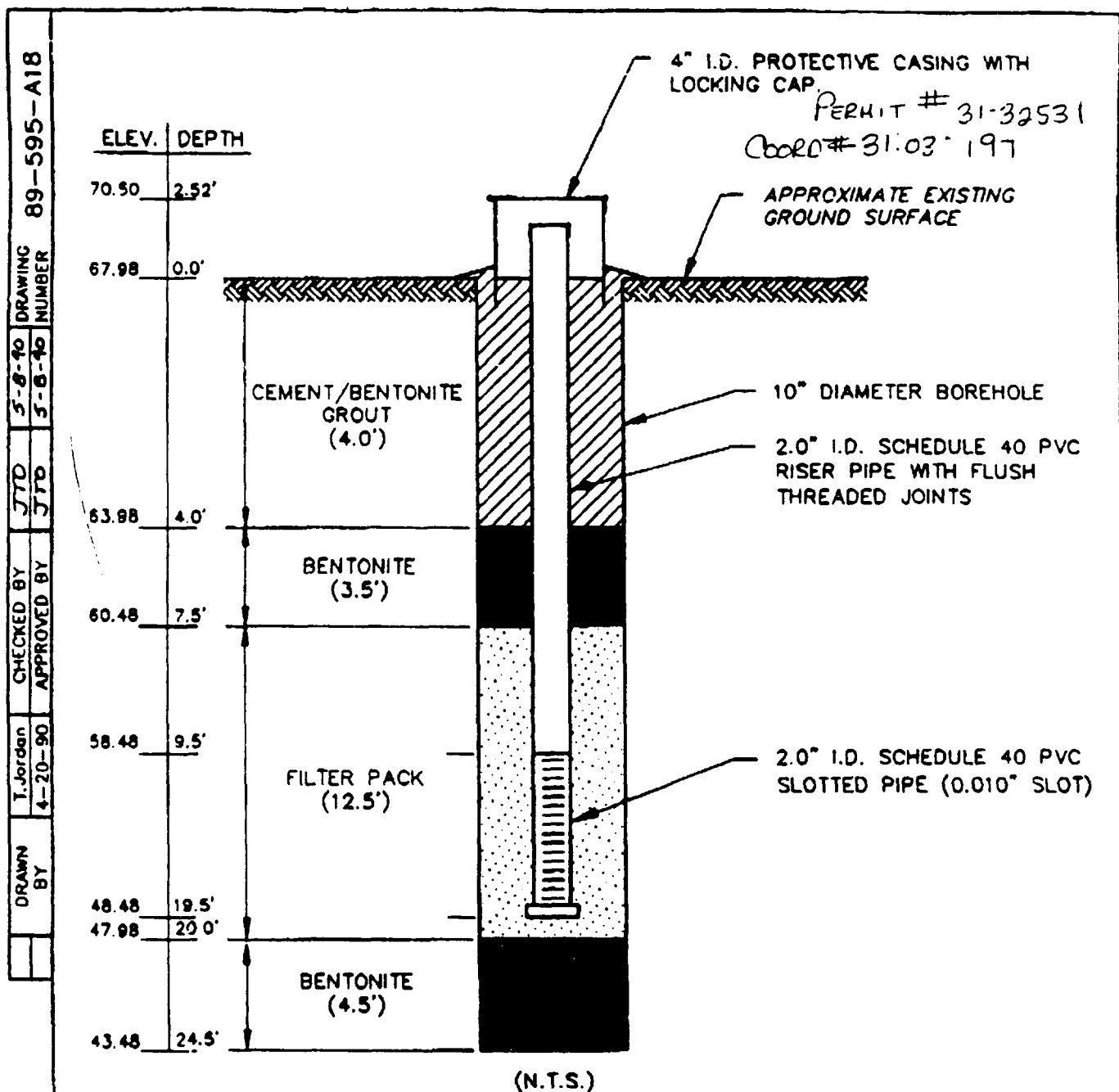
Matthee drilling Bldg 4th floor - under

ATV drill. CME 55

Bldg 4th floor - before

No organic material was detected by HML

302924

**NOTE:**

1. SEE FIGURE 10 FOR PLAN LOCATION OF MONITORING WELL
2. ELEVATION DATUM IS MEAN SEA LEVEL (M.S.L.)
3. DEPTH DATUM IS GROUND SURFACE

FIGURE B-3

**MONITORING WELL MW-3
 INSTALLATION DETAILS
 PULVERIZING SERVICES SITE
 MOORESTOWN, NEW JERSEY**

PREPARED FOR

**PPG INDUSTRIES, INC.
 PITTSBURGH, PENNSYLVANIA**



**Paul C. Rizzo Associates, Inc.
 CONSULTANTS**

MONITORING WELL RECORD

Well Permit No. 31 - 32532
Atlas Sheet Coordinates 31 : 03 : 197



OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEBOW AVENUE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. HW-4
County _____ Municipality MOORESTOWN TWP Lot No. 218, F, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/4/90
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES, INC. Tele. # _____

WELL CONSTRUCTION

Total depth drilled 15.0 ft.

Well finished to 15.0 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2.33 ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 5 1/2 ft.

Water level was measured using TAPE

Well was developed for _____ hours at _____ gpm

Method of development CENTRIFUGAL

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HEILON STEEL ALDER

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITELEBACHER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. License No. 10666

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.) [From land surface]	Diameter (inches)	Type and Material
Inner Casing	0	5	2	Pvc
Outer Casing (Not Protective Casing)	—	—	—	
Screen (Note slot size)	5	15	2	Pvc. slot .40 .010 slot
Tail Piece	—	—	—	
Gravel Pack	4	15	10	FILTER SAND
Annular Seal/Grout	0	4	10	BENTONITE & CEMENT
Method of Grouting	TREHLE			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG.

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Charles Hitelebacher

Date

02-07-90

COPIES: White & Green - DEP Canary - Driller Pink - Owner Goldenrod - Health Dept.

302926



Paul C. Rizzo Associates, Inc.
CONSULTANTS

PERMIT #: 31-32532
00020# 31:03:197

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 89-535 PROJECT NAME PPG PAGE 1 OF 1
BORING NUMBER B11 SURFACE EL. _____
COORD. (N) _____ G.W. DEPTH _____ DATE/TIME 1-4-90 DATE STARTED 1-4-90
(E) _____ DRILLING METHODS 4 1/4" ASA, STT ENG/GEO AHT DATE COMPLETED 1-4-90
CASING INFO: SIZE/DEPTH _____

DEPTH (FT)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (6)	RECOVERY (%)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							
3-4	5-1	4-5	24	gray medium sand to silt, brown sand			Begin 1350 hrs
6-7	5-2	6-7	18	brown gray sand with orange brown and orange brown clay, medium gray clay, orange red clay, medium gray sand			
8-11	5-3	4-5	14	black sand			Let sample to be
10	5-4	8-11	18	5.5-6.0 black very clay			red from 5-3, amount
10	5-5	3-3	25	black clay sand			of 2-3 inches w/ 2-4 and
10	5-6	2-5	23	@ 8' black clay sand			full immersion, fine
10	5-7	8-11	12	black to gray clay sand			let sample to be
15	5-8	4-6	23	black sand in soil			
15	5-8	7-6	23	black gray clay sand (5-15.2)			
20				black gray clay at 15.2-17			
20				Bottom of Boring = 170'			Finish 1530 hrs
25							AN-4 installed
30							See well installation
							sheet for details

NOTES:

After drilling Bitch Hitzelberger with
47V drill - (MD 55)
No organic content detected by HNU

MONITORING WELL RECORD

Well Permit No. 31 32533
Atlas Sheet Coordinates 31 : 03 : 197

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LEUR AVENUE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. HW-5
County _____ Municipality MOORESTOWN TWP Lot No. 218, F, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/5/90
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES Tele. # _____

WELL CONSTRUCTION

Total depth drilled 14.5 ft.

Well finished to 14.0 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2.33 ft.

Was steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 4 ft.

Water level was measured using TAPE

Well was developed for _____ hours at _____ gpm

Method of development CYCLIFICAL

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HOLLOW STEEL AUGER

Drilling Fluid N/A Type of Rig A-50

Name of Driller CHARLES HOFFELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	9	2	PVC
Outer Casing (Not Protective Casing)	—	—	—	
Screen (Note slot size)	9	14	2	PVC SCH. 40 1010 SLOT
Tail Piece	—	—	—	
Gravel Pack	7	14	10	FILTER SAND
Annular Seal/Grout	0	7	10	BENTONITE & CEMENT
Method of Grouting	TREHIE			

GEOLOGIC LOG (Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature

Charles Hoffelberger

Date

02-18-90



Paul C. Rizzo Associates, Inc.
CONSULTANTS

Report # 31-30533
00010 # 31:03:197

VISUAL CLASSIFICATION OF SOILS

PROJECT NO. 89-595 PROJECT NAME PPG PAGE 1 OF 1
BORING NUMBER B/6 SURFACE EL. _____
COORD. (N) _____ G.W. DEPTH 8.0 DATE/TIME 12:30/0900 DATE 1-5-80
(E) _____ DRILLING METHODS 4 1/4" HSA SFT DATE STARTED 1-5-80
CASING INFO: SIZE/DEPTH _____ ENG/GEO AHT DATE COMPLETED 1-5-80

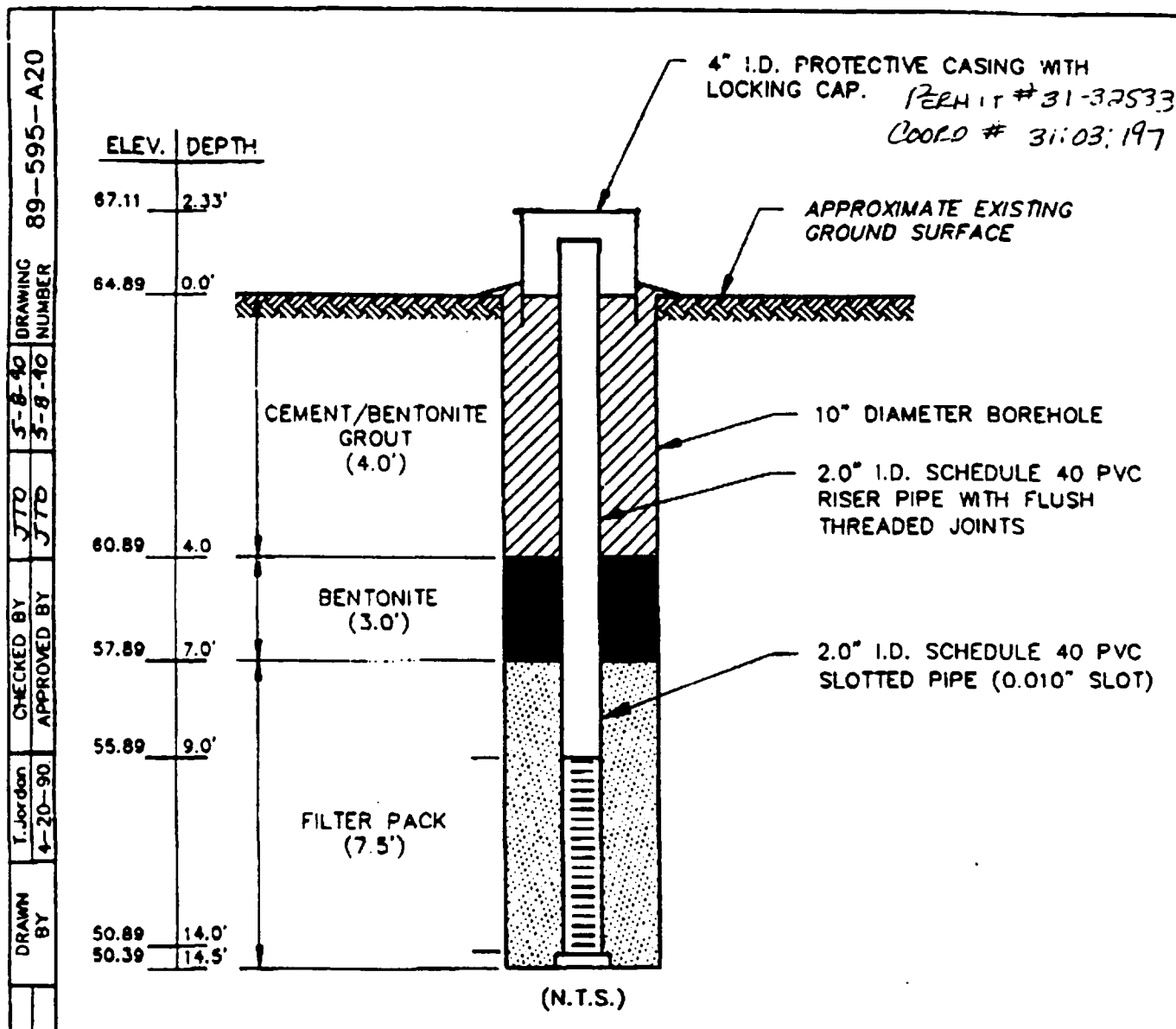
DEPTH (feet)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (6")	RECOVERY (in)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (TSF)	REMARKS
0							Begin 1545 hrs
5-1	7-4 4-4	19		begin to light brown silt & sand silty			1st sample taken
5-2	4-7 7-7	21		orange-red coarse sand and silt at 4'			1st sample taken
5-3	4-6 25	12		orange-red brown coarse sand 5.5-6.75 mm, 1/16" sand			
5-4	4-7 8-10	14		rusty orange red sand sandy gravel @ 9.3' - orange red clay			
5-5	7-10 14-18	11		red brown, coarse sand in clay @ 10.5'			1st sample taken
5-6	6-10 10-14	20		rusty coarse sand fine brown sand black. gray clay @ 14.1'			
5-7	6-9 11-13	17		black gray clay must			
20				Bottom of Boring @ 14.5'			Finish 1630 hrs
25							MW-5 installed See well installation form for details
30							

NOTES:

Mathias Drilling Buck Hutzlberger - Sullen
Bill Kiplinger - helper

Well - 111E 55
At casing repairs dictated by HML

302930

**NOTE:**

1. SEE FIGURE 10 FOR PLAN LOCATION OF MONITORING WELL
2. ELEVATION DATUM IS MEAN SEA LEVEL (M.S.L.)
3. DEPTH DATUM IS GROUND SURFACE

FIGURE B-5

**MONITORING WELL MW-5
INSTALLATION DETAILS**
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY

PREPARED FOR

PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA



Paul C. Rizzo Associates, Inc.
CONSULTANTS

MONITORING WELL RECORD

Well Permit No. 31 - 32534
Atlas Sheet Coordinates 31 : 03 : 197

OWNER IDENTIFICATION - Owner PULVERIZING SERVICES, INC.
Address 4325 LIND AVENUE
City NORTH CHARLESTON State SC Zip Code _____

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-41
County _____ Municipality MOORESTOWN TWP Lot No. 218, F, L Block No. 202
Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 1/13/90
Regulatory Program Requiring Well _____ Case I.D. # _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) PAUL C. RIZZO ASSOCIATES, INC. Tele. # _____

WELL CONSTRUCTION

Total depth drilled 12.5 ft.

Well finished to 12.0 ft.

Borehole diameter:

Top 10 in.

Bottom 10 in.

Well was finished: ☒ above grade
☐ flush mounted

If finished above grade, casing
height (stick up) above land
surface 2.61 ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 4.3 ft.

Water level was measured using TAPE

Well was developed for _____ hours at _____ gpm

Method of development CENTRIFUGAL

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Method HOLLOW STEM AUGER

Drilling Fluid N/A Type of Rig D-50

Name of Driller CHARLES HITZELBERGER

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

N.J. License No. 1066

Name of Drilling Company JOHN MATHES & ASSOCIATES

	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	6.5	2	PVC
Outer Casing (Not Protective Casing)	—	—	—	—
Screen (Note slot size)	6.5	11.5	2	PRO SCH. 40 .010 SLOT
Tail Piece	—	—	—	—
Gravel Pack	4.5	12	10	FILTER SAND
Annular Seal/Grout	0 12	4.5 12.5	10	BENTONITE CEMENT
Method of Grouting	TREHIE			

GEOLOGIC LOG

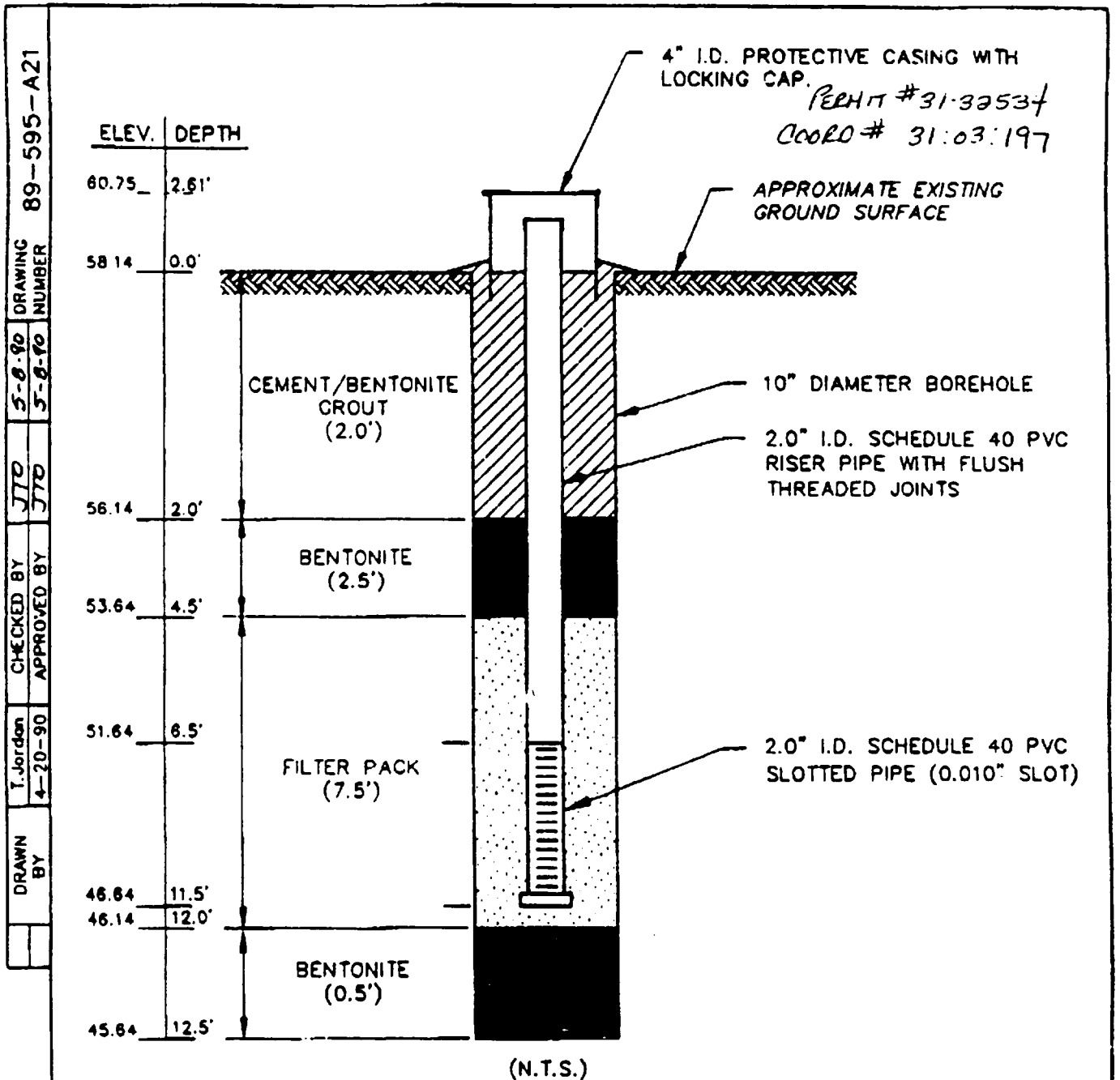
(Copies of other geologic logs and/or
geophysical logs should be attached.)

SEE ATTACHED LOG

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
State rules and regulations.

Driller's Signature Charles Hitzelberger Date 02-05-90

302932

**NOTE:**

1. SEE FIGURE 10 FOR PLAN LOCATION OF MONITORING WELL
2. ELEVATION DATUM IS MEAN SEA LEVEL (M.S.L.)
3. DEPTH DATUM IS GROUND SURFACE

FIGURE B-6

**MONITORING WELL MW-6
INSTALLATION DETAILS
PULVERIZING SERVICES SITE
MOORESTOWN, NEW JERSEY**

PREPARED FOR

**PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA**



**Paul C. Rizzo Associates, Inc.
CONSULTANTS**



Paul C. Rizzo Associates, Inc.
CONSULTANTS

VISUAL CLASSIFICATION OF SOILS

PERMIT # 31-33534
COCED # 31.03.197

PROJECT NO. 21-515 PROJECT NAME PPG PAGE OF
BORING NUMBER B-17 SURFACE EL.
COORD. (N) G.W. DEPTH DATE/TIME 1-3-70/1-4-70
(E) DATE/TIME 1-3-70
DRILLING METHODS 4' + 34 SPT ENG/GEO AHT DATE COMPLETED 1-4-70
CASING INFO: SIZE/DEPTH

DEPTH (<u>FT</u>)	SAMPLE NO. AND TYPE	BLOWS ON SAMPLER PER (<u>FT</u>)	RECOVERY (<u>%</u>)	DESCRIPTION	U.S.C.S. SYMBOL	MEASURED CONSISTENCY (<u>TSF</u>)	REMARKS
0							<u>Open Machine 1-3-70</u>
3	S-1	3-4	3	dark brown fine sand w/ 1% f. brown fine sand & 1% m. silt (w/ 1% brown m. clay source sand to 1' left)			<u>Stop 1145 hrs. 2-1-70</u> <u>SPT 5-815 hrs 1-4-70</u>
5	S-2	6-7	24	tan m. clay source sand			
5	S-3	9	15	tan m. clay w/ 1% m. sand brown source sand m. silt			<u>1st sample taken</u> <u>104 pps 5-3 hrs 2-2-70</u> <u>11-3 hrs 2-2-70</u> <u>17 hrs 2-2-70</u>
5	S-4	3-22	13	tan source sand m. silt			
10	S-5	1-3	20	tan m. clay w/ 1% m. sand & silt 2' - 3' m. clay source sand (100%)			
10	S-6	3-5	24	tan m. clay w/ 1% m. sand (100%) @ 10.6 - 12' 0" black gray clay (mud)		1.5	<u>1st sample taken</u>
15				<u>Bottom of Boring = 12.5'</u>			<u>Finished 0710 hrs 1-4-70</u>
20							
25							
30							
36							

NOTES:

Mud drilling. Rich Highlander - drill,
Ray Brown - helper

ATV drill - 1ME 15

16 or more inches were drilled by HILL

302933

APPENDIX H
MISCELLANEOUS DOCUMENTATION

302934



ENVIRONMENTAL ENGINEERING CORPORATION

October 14, 1994

Mr. Lou Bott, Township Engineer
Pennoni Associates
515 Grove Street
Haddon Heights, NJ 08035

**RE: CONFIRMATION OF FLOODPLAIN LOCATION
PPG PULVERIZING SERVICES SITE, BURLINGTON COUNTY, NEW JERSEY**

Dear Mr. Bott:

This letter serves to memorialize our discussion on October 12, 1994 regarding the proximity of the 100-year and 500-year floodplain to the PPG Pulverizing Services Site located in Burlington County, New Jersey.

It is our understanding that according to Federal Emergency Management Agency (FEMA) maps, the subject site is not located within or near a floodplain. Rather, the site is situated at one of the higher points in Moorestown Township.

If any part of this letter conflicts with the substance of our discussion, please contact me at (412) 934-3744. I sincerely appreciate your cooperation and assistance with this matter.

Yours very truly,

McLaren/Hart



Brent A. Fewell, M.E.M.
Environmental Scientist

cc: Neale Misqitta
File

(PPGNEWJE.BAF)

302935



ENVIRONMENTAL ENGINEERING CORPORATION

October 11, 1994

Mr. Terry Pfoutz
New Jersey Department of Environmental Protection
State Historic Preservation Office
501 East State Street, CN404
Trenton, NJ 08625

**RE: REQUEST FOR A STAGE 1A CULTURAL RESOURCE SURVEY TO IDENTIFY
POTENTIALLY PROTECTED HISTORIC RESOURCES,
MOORESTOWN, NEW JERSEY**

Dear Mr. Pfoutz;

This letter serves as a request for a state 1A cultural resource survey pursuant to and in fulfillment of the National Historic Preservation Act of 1966 and Executive Order 11593 to identify archeological resources of historic significance. The area of interest has been highlighted on the attached map. We request that any and all resources in the vicinity of the designated area which are currently registered under NHPA or are under consideration for listing be identified.

Please confirm the presence and/or absence of such resources and include, if applicable, a map of resource locations by submitting pertinent correspondence to the following:

Mr. Brent A. Fewell
McLaren/Hart Environmental Engineering Corp.
8500 Brooktree Road, Suite 300
Wexford, PA 15090

We also request that you waive search and duplication fees pursuant to 5 U.S.C. § 552(a)(4)(A)(iii), as amended, because disclosure is likely to contribute significantly to public understanding of the operations or activities of the government and is not in the commercial interest of the requestor. Should you have any questions regarding this request, please contact me directly at (412) 934-3744.

Yours very truly,

McLAREN/HART



Brent A. Fewell, M.E.M.
Environmental Scientist

cc: Neale Misquitta

(GENERAL/LOO1.BAF)

302936

8500 Brooktree Road, Suite 300, Wexford, PA 15090 (412) 934-3744 FAX (412) 934-5944

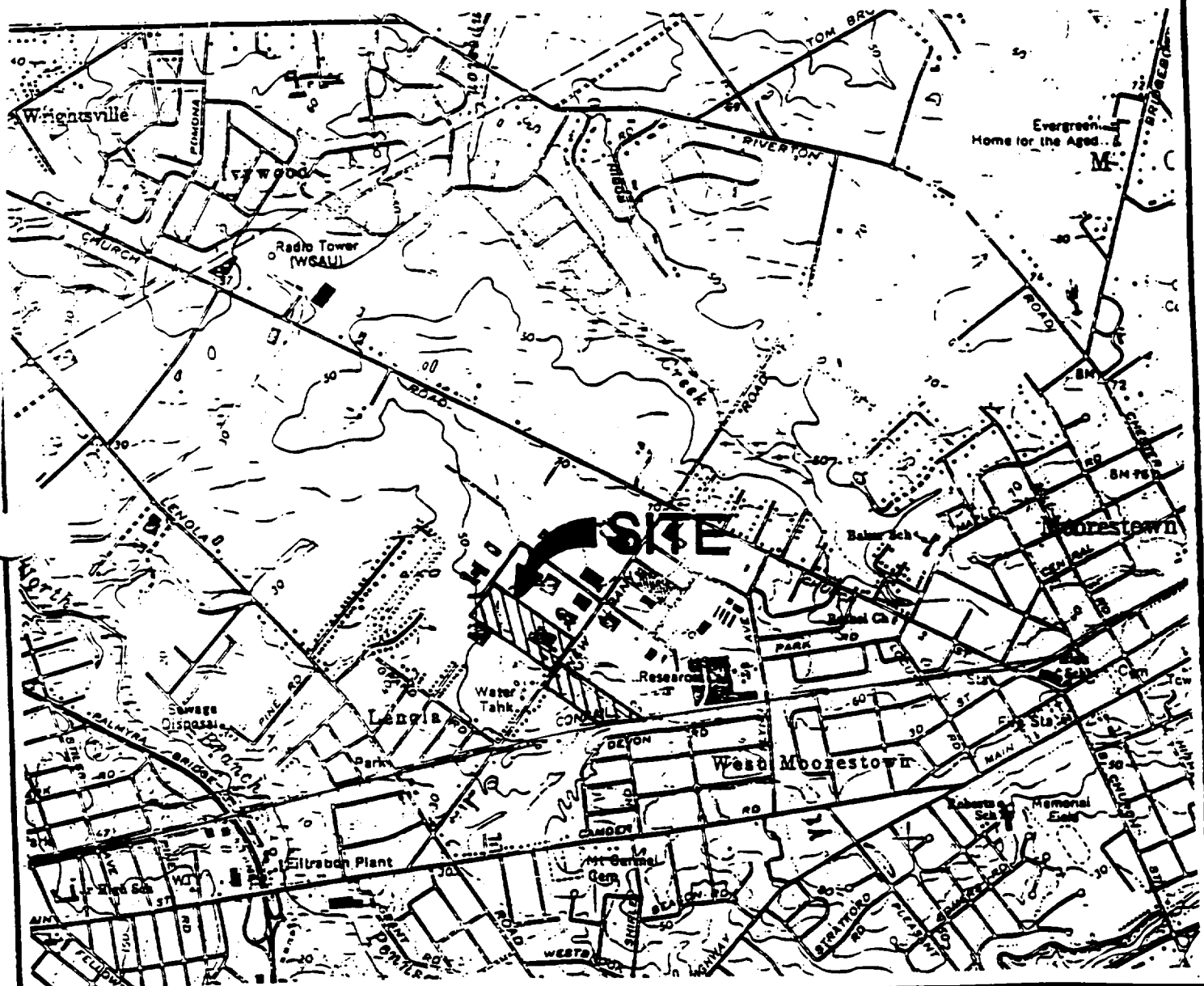


MOORESTOWN, NJ
USGS 7.5 MIN.

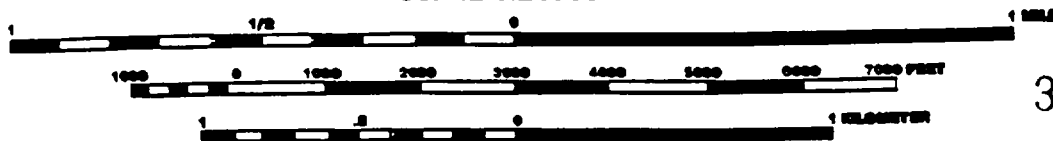
1965
PHOTOREVISED 1966

NEW JERSEY

QUADRANGLE LOCATION



SCALE 1:24000



302937

PHASE-I INVESTIGATION REPORT

DRWN: M.J.H.

CHKD:

APPD:

SCALE:

AS SHOWN

DATE: 1-21-66



PPG INDUSTRIES, INC.
PITTSBURGH, PENNSYLVANIA

SITE LOCATION MAP

DRAWING NUMBER
00-0001451

FIGURE 1



October 14, 1994

Mr. Lou Bott, Township Engineer
Pennoni Associates
515 Grove Street
Haddon Heights, NJ 08035

**RE: CONFIRMATION OF FLOODPLAIN LOCATION
PPG PULVERIZING SERVICES SITE, BURLINGTON COUNTY, NEW JERSEY**

Dear Mr. Bott:

This letter serves to memorialize our discussion on October 12, 1994 regarding the proximity of the 100-year and 500-year floodplain to the PPG Pulverizing Services Site located in Burlington County, New Jersey.

It is our understanding that according to Federal Emergency Management Agency (FEMA) maps, the subject site is not located within or near a floodplain. Rather, the site is situated at one of the higher points in Moorestown Township.

If any part of this letter conflicts with the substance of our discussion, please contact me at (412) 934-3744. I sincerely appreciate your cooperation and assistance with this matter.

Yours very truly,

McLaren/Hart



Brent A. Fewell, M.E.M.
Environmental Scientist

cc: Neale Misqitta
File

(\PPGNEWJE.BAF)

302938